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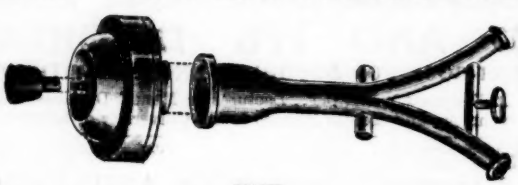

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CONTENTS.

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CLINICAL OBSERVATIONS

In India during the War. By A. W. SHEEN, C.B.E., M.S., M.D., F.R.C.S., Colonel, A.M.S. (T.F.); formerly O.C. No. 34 (Welsh) General Hospital, India, and Consulting Surgeon, War Hospitals, India; Consulting Surgeon, King Edward VII. Hospital, Cardiff 273

ORIGINAL ARTICLES.

Maternal Mortality in Childbed. By Sir JOHN PHILLIPS, M.A., M.D.Cantab., F.R.C.P., Honorary Physician to Her Majesty Queen Mary; Consulting Obstetric Physician to King's College Hospital; and Emeritus Professor of Obstetrics in King's College 275

The Conduct of Labour and Puerperal Sepsis. By J. H. B. BROCK, M.D., B.S. Lond., D.P.H., F.R.C.S. Eng., late Honorary Physician to the Westminster General Dispensary 277

Kineplastic Amputations. By M. FITZMAURICE-KELLY, F.R.C.S.Eng., Acting Major, R.A.M.C. 280

Observations on Lengthening of Amputation Stumps. By W. E. GALLIE, M.B., F.R.C.S., Major, Canadian Army Medical Corps 282

A Case of Carcinoma of the Pelvic Colon Treated by Excision and Anastomosis. By CLAUDE FRANKAU, C.B.E., D.S.O., F.R.C.S. Eng., Senior Assistant Surgeon to St. George's Hospital 282

A Note on Segmental Hyperalgesia in Malaria. By D. W. CARMALT JONES, M.D., F.R.C.P., late Temporary Colonel, A.M.S., and Consulting Physician, B.E.F. 283

Paratyphoid Infections of the Pleura. By J. HILL ABRAM, F.R.C.P., Honorary Physician, Royal Infirmary, Liverpool; lately Acting Physician, Northern Hospital, Liverpool; and ERNEST GLYNN, F.R.C.P., Professor of Pathology, University of Liverpool; Captain, R.A.M.C.T. (From the Thompson Yates Laboratory.) 283

Small-pox Notes for Practitioners. By W. McCONNEL WANKLYN, B.A. Cantab., M.R.C.S., L.R.C.P., D.P.H., Author of "How to Diagnose Small-pox," "Illustrative Cases in the Diagnosis of Small-pox," "The Administrative Control of Small-pox," &c. 284

Vaccination by Subcutaneous Injection. By J. R. GOODALL, O.B.E., B.A., M.D., C.M., D.Sc. (McGill Univ.), F.A.S.G., Major, C.A.M.C.; Assistant Professor of Gynecology, McGill University, Montreal 285

REVIEWS AND NOTICES OF BOOKS.

William Howard Lister. By Walter Seton 286

Practical Vaccine Treatment for the General Practitioner. By R. W. Allen, M.A., M.D., B.S., late Captain, N.Z.M.C. 286

The Newer Knowledge of Nutrition: the Use of Food for the Preservation of Vitality and Health. By E. V. McCollum 287

Health Resorts of the British Isles. Edited by Neville Wood, M.D. Second edition 287

The Military Surgeon 288

LEADING ARTICLES.

THE REORGANISATION OF PENSIONS 289

ERNST HAECKEL 290

ANNOTATIONS.

The Birthday Honours 291

Experiments on Output 291

Moral Imbecility 291

Deaths from Malaria in England 292

Influenzal Otitis 292

Poor-law Medical Institutions and Lay Superintendence 292

International Health and the League of Red Cross Societies 293

Amputation Stumps 293

Marine Hygiene 293

Housing Schemes 294

The Action of Ultra-violet Rays on the Accessory Food Factors 294

Andrew Carnegie 294

SPECIAL ARTICLES.

Registrar-General's Decennial Supplement (1901-1910.—I. ... 295

The Public Supply of Vaccine Lymph 296

Paris 297

Australia 297

Notes from India 298

A Monthly Record of Atmospheric Pollution.—Meteorological Office: Advisory Committee on Atmospheric Pollution: Summary of Reports for the Months ending August 31st, 1918, and Sept. 30th, 1918 298

URBAN VITAL STATISTICS:

English and Welsh Towns 298

Scotch Towns 298

Irish Towns 298

CORRESPONDENCE.

Intravenous Injections of Antimony Tartrate in Bilharziasis (Dr. J. B. Christopherson) ... 299

The Origin of Life: the Work of the late Charlton Bastian (Surgeon Commander W. Bastian, R.N., Mr. J. Butler Burke) 299

Talent and Miscegenation 300

The Position and Payment of the Pensions Boards 301

The Incidence of Tuberculosis amongst Asylum Patients ... 301

THE SERVICES.

The Honours List 302

Royal Army Medical Corps 304

Royal Air Force 305

India and the Indian Medical Service 305

MEDICAL NEWS.

Drought in Belfast 296

Donations and Bequests 298

Fatality from Carrying Loose Matches 298

Death from Status Lymphaticus 301

Death of Professor William S. Greenfield 305

University of London: Passlist 305

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics: War Pensions (Administrative Provisions) Bill 305

House of Commons: Hospital Arrangements in India.—Hospital Carriers for Russia.—Public Health Research.—Medical Arrangements in Russia.—Venereal Disease.—Food for Patients in Sanatoriums.—Filthy Streets and the Public Health.—Breaches of Discipline at Warlingham Hospital 305

NOTES, SHORT COMMENTS, &c.

An Emergency Cases Hospital in the Meuse. By J. A. CAIRNS FORSYTH, M.Sc., M.B., F.R.C.S., Surgeon to the French Hospital.—(*Concluded*) 308

The Ill-effects of the Amours of Old Men 309

"Diadem" Talcum Powder 309

Mothercraft 309

A Medical Reformer 310

Pregnancy and Childbirth among Siberian Aborigines ... 310

Reducing a Dislocation 310

Medical Diary 307

Appointments, Vacancies 307

Births, Marriages, and Deaths 308

Communications received 308

Books, &c., received 310

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THE following are brief observations which seem of interest, made during nearly three years in India. They are not meant to be exhaustive and I have confined myself to conditions peculiar to the tropics and mainly to India.

War wounds.—The gunshot wounds coming back from Mesopotamia did not suppurate either so often or so freely as those sustained in France. Many presented the clean "in and out" character of the South African war wounds. This is probably because the soil of Mesopotamia is not so infective as the highly manured soil of densely populated and elaborately cultivated countries like Belgium and Northern France. Tetanus and gas gangrene were infrequent, almost the only cases that I saw in India being in wounded Turkish prisoners, who had, before coming into British hands, been—perhaps unavoidably—inadequately treated.

Anæsthetics.—I am convinced that ether can be given in India. In 1916, on arrival, I was fortunate in having under me officers who could give "open ether," and it became the routine anæsthetic. Later the details of an "open ether" series of cases were carefully recorded at one of the Bombay war hospitals. The operations were in May and June, the hottest time of the year, with the temperature between 90° and 100° F. Scopomorphine sometimes, but not always, preceded. The majority of the operations were abdominal. No difficulties were experienced in any case; the amount of ether given was not excessive. In India with ordinary precautions there is no difficulty in keeping ether. It could be manufactured there with a little enterprise.

Operating and operation theatres in hot climates.—To prevent sweat dropping on to the wound area special assistants dab the faces of those concerned in the operation with the ends of rolled towels or with mops on handles. A small mouth mask should be worn. Through a large-type face mask one perspires and cannot be mopped. Bacteriological investigation of the sweat on several occasions universally gave a pure culture of *Staphylococcus albus*. The following is probably a case of sweat wound infection.

On a hot day the femur was plated with two heavy plates in a simple fracture; skin was carefully excluded. There was a slight evening rise of temperature, usually 99·2°. Except for this all went apparently well until between five to six weeks after the operation, when a point of sero-purulent oozing appeared in the wound line; this gave a pure cultivation of *Staphylococcus albus*. Later, after bone union, the plates were removed and every one of the screw-holes tested gave a similar cultivation. Cases such as bone-plating should be removed to a cool place for operation.

A fan in the theatre is unobjectionable; the air near it showed no more organisms than in other parts of the theatre. A case of neck suppuration led me to advise that the long-haired, full-bearded Sikhs should wear sterile linen fitted covers for head and beard during operations on them. A roof light is not usually found in Indian theatres. Sterile topees for all concerned would be a ludicrous addition to the equipment! There is no objection, however, to a sloping north roof light of the long and narrow type continuous with a narrow north window. Too big a north window is to be avoided. I know of one "war" theatre where practically the whole north wall is glass, making it a veritable hot house. The room where the sterilisers are should not be continuous with the theatre, but cut off by an open corridor—i.e., one with a roof but no sides.

Orthopædics.—The principles of military orthopædics have been so often and so well enunciated that I will not give more than the briefest summary of my views. They are embodied at length in the *Indian Medical Gazette*.[1] The treatment of these cases should be preventive from the beginning; it is necessary that there should be quick return from the active war areas and segregation in a few large special hospitals where all the necessary specialists and the special treatment materials are assembled. I had to combat the idea that British "orthopædics" could wait until they got to England to be treated. Many could be cured and sent back to duty. For those—a minority—who had to go home I recommended "orthopædic" equipment on the hospital ships.

The cases in Indians presented some special features. A number were largely functional, and amongst some of these patients—as those who know the country will realise—a disability is regarded as an asset. Particularly it was found that special physical drill was very valuable in curing functional deformities, and on the parade ground the motionless arms or legs would gradually be seen to move more and more in concert with the limbs of the others exercising. In this connexion it is interesting to call attention to the great use the Germans have made of this form of treatment.

Head cases.—A number of cases of head wounds which had gone to England and, being apparently well, had been sent back to Mesopotamia came under my notice in that, having been a very short time in Mesopotamia, they were invalided to India with headache or other symptoms. My conclusion was that head wounds should not be returned to a hot climate. I saw my colleague Major L. B. Rawling's cases of decompression for epileptiform attacks following heat-stroke, and can testify to the benefits of the operation.

Oriental sore.—This cutaneous or subcutaneous malady, due to the infection of the tissues with *Leishmania tropica*, is of great interest. Its names are protean: Delhi boil, Bagdad boil, Aleppo boil are some of many. The cases which I saw all came from Mesopotamia. Sand-flies have been suggested as a possible source of infection. In typical cases the diagnosis is easy—a more or less scabbed, sloughy, often circular ulcer, usually on exposed parts of the body. Diagnosis is confirmed by finding the typical parasite in scrapings or, better, by puncture of the edge. The subcutaneous form is often most puzzling. In a case shown by Lieutenant-Colonel R. Row, I.M.S., to the Bombay War Hospitals Medical Society there was a group of keloidal swellings, each about the size of an almond, over the left scapula; in a nursing sister, whom I saw with Captain H. Weir, R.A.M.C., there was a bluntly pedunculated sphere on the lower lip the size of a large marble, pale, shiny, œdematous-looking, of six months' duration. Diagnosis in these two cases would have been impossible without the aid of puncture. I saw many cases in British soldiers and several in nurses.

As with many diseases which spontaneously tend to get well, numerous forms of treatment have been credited with success. Colonel Row gave a vaccine prepared from the parasite and dressed the sores with salol in oil. I have seen good results from salvarsan and from X rays. Other measures, such as scraping, ionisation, and the application of antiseptics or caustics, sometimes apparently cure but are followed by recurrence. Intravenous injection of antimony tartrate is usually successful. A good treatment for small sores suitably situated is complete excision. Microscopical examination of the excised sore shows down-growing columns of cells with cell-nests indistinguishable from epithelioma. This has an interesting bearing on the ætiology of cancer, and it is to be remembered that the South American naso-pharyngeal form of the disease is known as "Leishman cancer."

Regarding infection, Colonel Row called my attention to a flagellate found in the latex of plant juice (Euphorbia) which strongly resembles, morphologically and culturally, the flagellate form of the Leishman body. As the incubation period of oriental sore may be prolonged to five or six months, and as apparently healed cases may recur, the disease should be borne in mind in the home country.

Kangri cancer.—A visit to Srinagar in Kashmir gave me an opportunity, through the kindness of Dr. Ernest Neve, of visiting the excellent mission hospital there and learning something about this disease. The Kashmiri keep themselves warm during their very cold winters by hugging to the abdomen under the clothing a kangri, which is an earthenware receptacle about 4 inches across enclosed in basket work, this being continued into a curved-over handle. In it is kept glowing wood ash. Minor skin irritation, staining, or

[1] "The Principles of Military Orthopædics, with Notes on the Constitution of an Orthopædic Hospital," Indian Medical Gazette, vol. liii., No. 9, September, 1918.

ulceration are common results and sometimes cutaneous cancer develops. I saw Dr. Neve operate on one case. The patient, a man, aged 60, had a large circular median growth below and including the umbilicus; it was removed with muscle and a portion of peritoneum. In this case the growth was recurrent, the original operation having been done six months previously. For the following facts I am indebted to Dr. Neve. The cancer occurs in skin irritated or actually burnt from kangris. As well as the abdomen, the fronts of the thighs are affected from squatting. Though this growth is below the umbilicus the glands in the axillæ must be examined, as they may be affected. It is best to remove the groin glands when operating, even if these are not obviously affected. The disease is more frequent in people who have warts or moles about them. The man whom I saw operated on had a pigmented mole on his forehead. Dr. Neve had never seen a case under 30.

Guinea worm.—It would puzzle anyone unacquainted with this infection to know the meaning of an earthenware receptacle of water suspended some feet above the leg of a patient, while from a small hole in its bottom water drips on to an opening in the patient's leg, from which a whitish thread protrudes. This is a method of coaxing out the worm. The worm—always a female—lies under the epidermis. It tends to emerge, and this may be hastened by injection of various antiseptics. When, as occasionally, closely coiled the worm can be excised in toto; rarely it protrudes as a loop. The native method of abstracting it is by twisting the protruding portion round a stick, giving a turn or two daily. Castellani suggests that the worm is the fiery serpent of Moses; if this is so, the badge of the R.A.M.C. shows this method of abstraction! The worm should never be pulled upon, for if it breaks in the tissues it sets up an intense gangrenous cellulitis, often fatal; I saw two cases of this kind which died. The worm is mostly uterus, and the uterine contents appear to be intensely irritating to the tissues. The method of treatment is, of course, alluded to in some text-books.

Inguinal bubo.—I saw quite a series of cases in which no source of infection was demonstrable, the majority being in Colaba War Hospital under the care of Captain G. W. Bury, R.A.M.C. The patients were British, the greater number being sailors. The glands enlarge and soften and excision shows broken down gland tissue and sero-purulent material. Cultivations were invariably reported sterile. The wounds often broke down aseptically and were slow in healing. I understand that cases of "Oriental bubo" are common amongst natives in the Madras district. The occurrence in sailors suggests infection through the bare feet, but no evidence was found in support of this.

Leprosy.—Of very great interest was a visit which I, in common with a number of other medical officers, paid to the leper asylum at Matunga, Bombay, on the kind invitation of Dr. Arthur Powell. The patients were mostly Hindoos, and the majority had lived near the sea. Dr. Powell pointed out the roughened, wrinkled, reddened skin like an orange; frequent enlargement of the nipples, constrictions round the fingers like ainhum, depressed nose bridges, hoarse voices from nodules on the laryngeal cartilages, mixed cases—i.e., both nodular and anæsthetic, the light-coloured anæsthetic areas, cases showing ulnar griffe; others, weakness of the anterior tibial muscles. "Nastin" and other remedies had been tried without success. The bacillus is not pyogenic. It can be got from the liver and spleen. The patients die of tuberculosis or other intercurrent disease.

In the visitors' book we saw the signature of Jonathan Hutchinson in 1903 and his written expression of opinion that no harm would come from selling flowers gathered by the lepers in their gardens, but that other people should not eat food prepared by lepers' hands.

Cholera.—Nothing struck me more about cholera than the urgency necessary for its treatment. To get cases early and to treat them early is to save their lives. The cholera outfit should be as ready and as handy as the tracheotomy box. The copious hypertonic saline intravenous infusions and the free oral administration of permanganate of potash are—as discovered and so ably advocated by Sir Leonard Rogers—truly life-saving procedures. I was glad to hear the presidential address of Sir Leonard Rogers to the Indian Science Congress at Bombay in January of this year, when he told us that his latest results showed a mortality of only 14·9 per cent.

Plague.—It is difficult to believe that this—perhaps the greatest scourge of India—only last invaded the country in 1896. Besides the rat, a little squirrel, known as the tree-rat, almost universal in India, can become infected. It seems to me that what is wanted in India is not so much laboratory research in plague as sending out amongst the people "missionaries" of their own race and class to teach them what to do to avoid plague and how to act if it occurs.

Malaria.—Of the numerous malaria patients a certain proportion come under surgical attention for this or that reason. I saw three cases of musculo-spiral paralysis following intramuscular quinine injections into the upper arm; in two of these the nerve had been freed from fibrous tissue and they were recovering. My experience is that aseptic operations do not set up an attack of malaria in patients who have parasites in their blood but no active symptoms. The patients were usually taking quinine at the times of the operations. I saw arthritis attributed to malaria.

I saw also sufferers from dysentery, scurvy, the typhoid group, influenza, and tuberculosis.

Dysentery.—I saw thickened transverse colon, cases of general tumidity of the abdomen, arthritis of knees and of ankles, and rectal ulcer which had been diagnosed as cancer. With regard to carriers, my colleague, Captain W. MacAdam, R.A.M.C., found proportionately more amongst the general hospital population than amongst the cases labelled dysentery.

Scurvy.—There were at one time many cases in Indians, and I am afraid the lime juice issued was not always a prophylactic. A series of leg sores, many apparently resulting from slight injuries, yielded readily to anti-scorbutic treatment, Dakin's fluid proving the best dressing for the ulcers. The hæmatoma in the calf or elsewhere resulting from scurvy is puzzling to diagnose if one is not on the look out for the disease.

Typhoid group.—Amongst the complications I saw phlebitis with leg ulcer; osteitis of tibia, humerus, and metacarpals; paralysis of deltoid with pectoralis major; a case under Lieutenant-Colonel T. S. Novis, I.M.S., where the muco-pus from the gall-bladder gave a pure cultivation of paratyphoid A; another case, on which I operated, a long-standing carrier, in which the gall-bladder contents were sterile. I wish that the surgeon had been called upon to drain the gall-bladder and the bacteriologist to investigate its contents in more of these carrier cases. A curious case of bilateral swellings in the posterior knee region following typhoid showed nothing but muscle on incision. A *B. coli* infection of the urine occurred occasionally after typhoid; the patients had puffy, pasty faces. An autogenous vaccine usually, but not always, cured.

Influenza.—Amongst the surgical complications I noted two cases of suppurative parotitis, one bilateral. From the pus of the latter pneumococcus was obtained in pure culture.

Tuberculosis.—There seemed an unusual incidence of surgical tuberculosis of bones, joints, glands, and abdomen in Indians who had been in France. Special institutions are badly needed for the treatment of these cases.

Snakes.—Cobras and kraits were a bête noir in my hospital area, and one walked about at night with a lantern. The antivenine and other necessary equipment for treating snake-bite were always kept ready in the emergency receiving room. Antivenine is useless for krait-bite. It was interesting at the Bombay Bacteriological Laboratory to see the snakes handled. They bit into material stretched tightly over the top of a wineglass, the venom being milked out of their glands into the glass. Then they were fed with a milk preparation through a funnel. The Russell's viper was the fiercest of all. The man who handled the snakes was rumoured to get the munificent sum of 10–15 rupees a month!

Ulcers.—Bites of mosquitoes and other insects sometimes develop into ulcers which were slow in healing. At Secunderabad I saw a case of ulcer of the ankle which had given a pure cultivation of a diphtheroid bacillus, and I was told that there had been a regular epidemic of similar cases elsewhere.

Madura foot.—I saw one case of this in an Indian. It had started three months previously at Samara, and was attributed to the kick of a mule. There was a large puffy swelling over the inner ankle in which were several sinuses from which pus could be squeezed showing the characteristic yellow granules.

Bilharziasis.—This I saw successfully treated by Captain T. B. Heaton, R A M.C., with intravenous injections of antimony tartrate.

Bugs.—These are the plague of Indian barracks and most difficult to get rid of. To deprive them of their proper nutriment by emptying the barrack of its human inhabitants is not much good, as one realises by recalling Shipley's statement that a bug can live for a year without nourishment, although at the end of that time it is so thin that you can read print through it. We had most success by generating HCN and letting it into the barrack, emptied except for its furniture and bedding. The louvred roofs of the barracks are, however, difficult to seal. The HCN machines are used by railway companies in India for their carriages. The smell of prussic acid wafted over the barracks of a 3000-bedded hospital is most impressive

For bedsteads total immersion in a special tank of boiling water is, of course, effective. This method I saw in use at Secunderabad. Wooden bedsteads and woolen mosquito poles are to be avoided; the bugs get into all the cracks. Apart from the above, painstaking cleaning of bedsteads and furniture and sterilisation of bedding and clothing are the best remedies.

Conclusion.

In conclusion, let me say how fresh and varied in medical experience is India to the newcomer, and I hope that these random notes will do something to convey this interest to others. I trust that the Medical Service of India, remodelled as it should be, with its manifold opportunities for interesting practice and its general attractiveness, will never cease to command the best trained members of the profession.

MATERNAL MORTALITY IN CHILD-BED.

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CAN maternal mortality in childbirth be further reduced?

At the present time, when most medical men interested in obstetrics are studying eugenics and antenatal pathology, it behoves one to produce all possible evidence in the hope of arriving at improved results and diminished maternal mortality. I have thought it might be of interest, and possibly helpful, to give an abstract of 35 years of midwifery in private practice. No record of a large number of cases under these circumstances has recently been published, and a comparison between the results obtained in private practice and in public institutions may lead to useful conclusions. I have looked up the notes of all the cases of pregnancy and labour for which I have been personally responsible during 35 years and I find that in round numbers the total is 2100. I met, unfortunately, with seven maternal deaths, of which I give abstract notes below, taken from full records made at the time.

Reduction of Septic Mortality and Morbidity in Special Hospitals.

The great risk of labour in the "seventies," and previously, was puerperal fever. The records of special hospitals and lying-in wards at that time make dismal reading, for they speak only of repeated outbursts of what is now known as streptococcic infection and the usual heavy toll of deaths, with consequent closing down of the wards.

The introduction of antiseptics in the late "seventies" gradually changed all this, and although the first attempts at grappling with the germ were not very successful, still, by continued effort, such an improvement resulted that for some years now streptococcic infection may be said to have been practically banished from lying-in hospitals and the obstetric wards of general hospitals, although occasional outbursts are from time to time reported in outlying districts.

As an obstetric clerk I remember officiating at several labours under the carbolic spray; nothing could be more disagreeable for patient and attendant, and the absorption of the carbolic acid occasionally produced carboluria and pneumonia. Anyone interested in the subject has only to refer to the late Dr. Robert Boxall's interesting and exhaustive paper on "Fever in Child-bed,"[1] read before the Obstetrical Society, in which he showed from the statistics of the General Lying-in Hospital how by gradual experiments in various antiseptics, beginning with permanganate of potash, followed by carbolic acid, and, lastly, by mercury, septic mortality and morbidity was steadily reduced.

During the last few years asepsis has somewhat replaced antisepsis; by that I mean sterilised dressings and gloves being used in place of strong antiseptic solutions. I must confess, however, that I know of nothing safer than the spirit solution of 1 in 1000 hydrarg. biniodide.

Care of Mother in Pregnancy and Puerperium.

Although streptococcic infection may be said to be a preventable accident, another formidable infection exists in *Bacterium coli*, the ravages of which are not yet fully grasped. The frequently depreciated health in pregnancy, especially among the poorer and ill-fed classes, is a fertile cause of this bacillus over-riding its natural barriers and infecting outside organs, especially the bladder, liver, and kidneys. In a recent paper I have endeavoured to show that very grave and even fatal results may occur from infection of the bile ducts by this organism.[2] The gonococcus, it need hardly be stated, is a formidable complication of the pregnant condition and may lead to a permanent disablement from infection of the tubes.

Pregnancy and labour are still looked upon by a large number of the laity as perfectly normal processes, but my experience, and I think that of hundreds of others, is that with our present conditions of life such is not the case.

I have always advocated the regular pelvic examination of women during the whole of pregnancy and the puerperium, in addition to a careful pathological examination of the excreta. When a patient misses a period and presumes herself pregnant a pelvic examination will reveal the possible presence of an ovarian dermoid cyst or uterine fibroid or other pathological condition which could be satisfactorily treated at the time. Examination at intervals should show a steady increase in the size of the uterus and an absence of any pathological products from the urine or fæces. Pelvic measurements are of great importance, and should there be the slightest suspicion of diminution or disproportion in any of the diameters of the pelvis the patient should be examined at fortnightly intervals, from the thirtieth week onward to term. Any deposit in the urine not clearing up by boiling should arouse a strong suspicion of bacilluria, and the practitioner should not be content with an ordinary test-tube examination.

It has also been my custom during the lying-in period to measure the level of the uterus daily for the first week, and to examine the pelvis internally at the end of a fortnight, and again at the end of three weeks, when the patient rises from her bed; subinvolution and retroversion of the uterus and unhealed lacerations are in this way detected.

Abstract of Fatal Cases.

I now append a short abstract of each of the seven fatal cases.

Acute Peritonitis.

CASE 1.—Aged 35, a 5-para, all at term. Pains began a month prematurely, vertex presentation, the labour lasted nine hours and delivery was natural and easy, a male being born alive. At the last labour, two years before, she had an acute attack of pain in the right iliac fossa, with temperature; this subsided and she remained quite well until a few days before the onset of the present labour; she then had several severe attacks of pain in the right iliac fossa, with temperature; labour came on prematurely during one of these attacks and continued after the labour. The patient died of acute peritonitis after 35 hours' illness; she was very weak and ill during the labour, with a rapid pulse and a hot, dry skin. A post-mortem was obtained, which showed general peritonitis over the lower abdomen, its focus being a gangrenous appendix lying in a cavity of putrid pus, the size of an orange.

It must be noted that this case occurred in 1883, at which period the pathology and treatment by operation of disease of the appendix was not sufficiently recognised; had I seen this case at the present time no doubt the proper course would have been to open the abdomen before labour commenced, and a satisfactory issue might have resulted.

[1] Obstetrical Transactions of London, 1889, xxxii., 215, 275.
[2] Hepatic Toxæmia, Royal Society of Medicine, Obstetrical and Gynæcological Section, 1916, 115.

I have contributed a short paper on this subject entitled "Acute Peritonitis (without Discovered Cause) Complicating Pregnancy and Labour."[3]

In this is related the case of a woman, nearly seven months pregnant and in good health, who fell over a chair-back on her left side. Much pain and persistent vomiting followed. She was found in a very serious condition, her abdomen distended, pulse 120, temperature 103° F., and respirations 48. Though no proper pains could be distinguished, labour came on and terminated very quickly. Her condition became rapidly worse, her abdomen was opened and general peritonitis found, but no apparent cause. Free drainage was carried out, but the patient died in the course of a few hours.

Cases of a similar nature described by Simpson and Gow are too sparse in their details to draw any satisfactory conclusion from.

"Russian" Influenza.

I believe this to have been one of the earliest cases of what was then called "Russian" influenza. I was attacked with the same malady within 24 hours.

CASE 2.—Aged 27, seven children. When 8½ months pregnant she was seized with a sharp rigor and all the symptoms of the disease we now call epidemic influenza. Bronchial catarrh rapidly ensued, with distressing dyspnœa and blueness of the face. There was a large amount of liquor amnii present, and, as the cervix was thin and soft and admitted three fingers, in order to relieve her distress the membranes were punctured. Temporary relief to the dyspnœa was given, labour came on rapidly, and a living child was born, followed by a short amelioration of the symptoms, but the bronchial affection rapidly increased and she died in great dyspnœa within 24 hours of the labour starting.

This case fully bears out the experience of the epidemic of 1918, where advanced pregnancy complicated by this disease was in a large proportion of cases fatal in a few days from septic pneumonia, no remedy appearing to have any power to check its progress.

Hæmorrhage.

CASE 3.—The patient, a 2-para, whom I had attended three years before with a somewhat difficult labour, was again 38 weeks pregnant. She was then in the country, and without any warning she was seized with severe hæmorrhage. As soon as she had sufficiently recovered from this she was driven up to London, and, unfortunately, during the journey she passed over a level railway crossing at somewhat high speed. She was badly jolted, and a return of the hæmorrhage took place before reaching her journey's end. When I reached her I found her almost pulseless, with the cervix two-thirds dilated and the edge of the placenta presenting posteriorly. I therefore ruptured the membranes and proceeded to endeavour to restore her by venesection and saline injections. She did not respond very well to this treatment. In the meantime the hæmorrhage all ceased, labour pains came on, and the head descended into the pelvis. Immediately on full dilatation of the cervix I applied the forceps without an anæsthetic and lifted the child out quite easily; it was stillborn. For an hour she tended to improve under the action of the usual restoratives, but after that she rapidly sank without any further hæmorrhage.

Had I seen this case during the first hæmorrhage the obvious treatment would have been a Cæsarean section, but her condition after the second hæmorrhage was so grave that no possible attempt at operation could be made.

Concealed Accidental Hæmorrhage.

CASE 4.—This patient, a 2-para, was at full term and was suffering from cardiac trouble, namely, pericarditis with aortic stenosis. She remained fairly well until the day of the labour. I had previously ascertained that the presentation was a vertex and the pelvic condition normal. Her pulse, however, was small and quick, much accelerated by any exertion; there was no albumin or swelling of the feet. She was suddenly seized with abdominal pain while at lunch on the day of her labour. On seeing her about an hour afterwards I found her in a collapsed condition, the uterus being hard and tender. Labour pains were slight, but the cervix was slowly dilating. All attention was therefore directed to her general condition, oxygen was given to inhale, salines were injected with strychnine and musk subcutaneously, but none of these remedies appeared to produce any improvement in her pulse. When the os uteri was fully dilated I applied the forceps and delivered easily without an anæsthetic; the child was stillborn. Immediately on delivery two measured pints of recent blood clot escaped. She slowly sank, and died in about an hour.

[3] Obstetrical Transactions of London, xli., 389.

This is quite a characteristic case of concealed accidental hæmorrhage. The cardiac complication was most unfortunate. I treated her on the lines generally laid down in my article on "Pregnancy and Cardiac Disease."[4] It is difficult to decide to what exactly to ascribe the patient's death. In two similar cases of concealed accidental hæmorrhage which I have encountered, a larger amount of blood was lost without producing more than an ordinary amount of temporary shock, and in both cases the child was alive, though in each case resuscitation was difficult. She had been warned against pregnancy by more than one authority on heart disease, so that apparently the extra strain of pregnancy and then the hæmorrhage were sufficient to produce what must be termed "shock." Quite possibly had the drug pituitrin been in existence it might have done something towards saving her life. If the cardiac condition had been more sound, I think Cæsarean section would have been indicated.

"Hepatic Toxæmia."

CASE 5.—This case is described under "Hepatic Toxæmia" (Case 1)[5]. The patient was a primigravida, with well-marked pelvic contraction, for which induction of labour was carried out. For some weeks before labour sickness and prostration had been observed. Labour was quite easy and delivery natural, and there was no apparent reason for the child's stillbirth. The progress of the case immediately after labour was most unsatisfactory, the vomiting continued and shortly afterwards contained altered blood. Jaundice supervened and the patient died in 48 hours, with a temperature of 110°. A post mortem was obtained and a difference of opinion occurred as to the exact cause of death, one of the pathologists considering it a case of acute yellow atrophy of the liver, and another, hepatic toxæmia.

Assuming that this was a case of acute yellow atrophy of the liver, it is the only one of the kind that I have ever encountered. I believe that such cases are uniformly, rapidly, and progressively fatal, no remedy having, so far, been discovered.

Pregnancy following Abdominal Uterine Fixation.

CASE 6.—This patient, a 6-para, had not been pregnant for seven years. She had had uterine fixation for prolapsus, which had improved her health very much. I did not see her until the thirty-eighth week, when a very serious condition of things was present. The fœtus was lying transversely in the abdomen in a bi-lobed swelling, the narrow portion of which was produced by adhesions from the old operation. The head lay in one dilatation, the buttocks in another. At a consultation the question of Cæsarean section or immediate induction was discussed, and the latter decided on. The labour proceeded quite quietly until dilatation of the cervix was sufficient to bring down a leg. I carefully turned and was surprised how easily it was brought about. Labour terminated rapidly, a living child being born; the placenta was expressed in the ordinary course and the patient appeared quite well for an hour. She then became faint, and, although there was no hæmorrhage and I had explored the uterine cavity to eliminate any question of rupture of the uterus, she died in spite of all attempts to restore her.

It appeared that on two other occasions at her labours she had nearly succumbed from heart failure without any apparent reason, and it is quite probable that the stretching of the adhesions between the uterus and the abdominal wall during labour produced reflex inhibition of the cardiac apparatus. This case was an instance of the risk that attends pregnancy following an abdominal uterine fixation. In the old operation the sutures were passed through the fundus uteri, which prevented dilatation as the pregnancy advanced. In the more modern operation the sutures are passed low down, thus allowing dilatation of the fundus without producing either a miscarriage or difficulty at labour.

Secondary Post-partum Hæmorrhage.

CASE 7.—This patient, a primigravida, was at full term. The labour was a long and lingering one owing to slow dilatation of the cervix and an occipito-posterior presentation. The cervix was finally manually dilated, the head was rotated with the forceps, and delivery carried out. No complications followed, the placenta being easily expressed, and no hæmorrhage occurred. Forty-eight hours after labour her child had a slight convulsion, and an unwise relative walked hurriedly into the room and told her of it. I had seen both mother and child about two hours before and both were doing well. Almost immediately on receiving the news she had a violent secondary post-partum hæmorrhage and

[4] Practitioner, June, 1895, "The Management of the Pregnant, Parturient and Lying-in Woman Suffering from Cardiac Disease."

[5] Royal Society of Medicine, Obstetrical and Gynæcological Section, 1916, p. 115.

died within an hour, despite uterine plugging and the usual restoratives. I might add, however, that she was one of the most nervous and apprehensive patients I have ever attended.

Statistical Data.

The question to consider is, Can the present percentage of maternal mortality in child-bed be further reduced? This mortality may vary very much according to whether the labour takes place in a special ward, in private practice, or in outdoor maternity practice.

For instance, in 1916, in the outdoor department of the Ladies Lying-in Charity, Liverpool, 1086 cases were attended by midwives, with 2 deaths (0·18 per cent.).

At the General Lying-in Hospital in 1917, 870 cases were attended, with 5 deaths (0·5 per cent.), and in 1918, 914 cases, with 6 deaths (0·6 per cent.).

My own experience in special practice amounts to 2100 cases, with 7 deaths (0·3 per cent.). At a home for officers' wives, where labours are carried out under the best possible conditions and where all the patients are examined and reported on beforehand by myself, 240 were attended in 20 months, with 1 death (0·4 per cent.). This death occurred a few days after a normal labour owing to a severe abdominal operation for old-standing intestinal obstruction, a condition which had arisen independently of the pregnancy.

The mortality of every variety of practice thus varies from 0·18 per cent. to 0·6 per cent. These divergencies of results may be accounted for in many ways. At a lying-in hospital all the serious cases are admitted, some of them in a state of acute sepsis, others moribund from delay in delivery; and, I think, the statistics of the General Lying-in Hospital may be considered a very fair indication of the results obtained in the class of cases admitted to such an institution. There is also the element of what can be called "chance"—for instance, my first two cases occurred in a short run of 40 labours; then followed an unbroken series of 636 cases without a death.

In private practice the patients are generally well-to-do, in healthy surroundings, and under the care of the family doctor. This class should be more likely to produce a low percentage of mortality than a lying-in hospital, where the patients have often been ill-fed, have lived in filthy surroundings, and may be admitted in an already infected condition.

Prospect of Reduced Mortality.

In studying the cases of death in my practice we have to consider whether any different treatment would possibly have saved any of the seven cases. The chief advance resulting from the antiseptic system is, no doubt, the perfection of Cæsarean section. This operation is now applied with the greatest success in a much extended class of case, more especially in placenta prævia occurring in primigravidæ and in selected cases in multiparæ, in concealed accidental hæmorrhage, and in most cases of puerperal convulsions in first labours. Thus it is quite possible that Cases 3 and 4 might have been saved by a prompt Cæsarean section. Case 1, under modern treatment, would also in all probability have been saved. Were I to meet a case similar to No. 6 again I should be inclined strongly to advise Cæsarean section in place of induction. If Case 5 was acute yellow atrophy, then it was practically hopeless from the onset of the disease, as I know of no case of recovery under those conditions. Finally, the last case, No. 7, was one of those accidents outside the control of the medical practitioner, but it serves as a warning to those who think that excitement is not harmful to the lying-in woman. Although Cæsarean section can be properly applied more extensively, I feel that the tendency is for the pendulum to swing in a somewhat extreme direction, and that in many cases of slight pelvic contraction, in which Cæsarean section is resorted to, an equally good result might be obtained by induction of labour.

From these statistics it is clear that maternal mortality in child-bed is certainly in process of being reduced, and the question now is whether we have at our disposal any means to reduce this mortality further.

Another important complication of pregnancy—namely, what is called "pregnancy kidney"—may, I trust, ultimately be treated successfully when the physiological chemist has discovered its cause. Vaccine treatment may also be expected to be much in evidence, especially against toxins and *Bacterium coli*.

With regard to the use of scopolamine morphine (twilight sleep), my own experience is that, although in some cases it acts like a charm, its results are not sufficiently reliable, and it certainly is not free from risk to both mother and child.

THE CONDUCT OF LABOUR AND PUERPERAL SEPSIS.

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LATE HONORARY PHYSICIAN TO THE WESTMINSTER GENERAL DISPENSARY

FROM that large majority of general practitioners who accept midwifery as part of their usual work, the dread of puerperal sepsis is never absent. When looking back nearly 40 years one contrasts the methods of that day with the present technique the enormous improvement is borne in upon one. To gauge results by hard figures is to admit, however, the comparatively small reduction in the mortality rate from puerperal sepsis. Indeed, the returns for the last 70 years prove that, for some of the earlier years, the death-rate was almost identical with some quite recent ones. Dr. Victor Bonney,[1] in his admirable address on the Continued High Maternal Mortality of Childbearing, the Reason and the Remedy, deplores that, while in every other domain of surgery death from sepsis has almost been abolished, in midwifery it has hardly diminished.

Some points bearing on the question have not, in my opinion, been sufficiently brought into the light of day, or made to bear the responsibility rightly belonging to them. I believe the reason for the high death-rate from puerperal sepsis resides in these facts; and not until their proper importance in the conduct of labour is accorded to them can we hope to attain asepsis.

A Vindication of Nature.

I take it that Dr. Bonney is inclined to attribute a part of the blame to a faulty surgical technique on the part of doctors and midwives, and partly to the difficulty of sterilising the "area of operation," owing to the position of the vagina. He considers this to have been a blunder of Nature. If so, she has persisted in repeating it in a very wilful way almost throughout the mammalia. And, as if to emphasise her cynical disregard for the end of the genital canal, she has gone out of her way further to outrage surgical propriety by causing the sexually mature woman to produce an abundant growth of coarse hair almost completely encircling the vulva, and practically incapable of sterilisation. Now, the first duty of Nature is to preserve the race, and to do so she would scarcely be furthering her ends by introducing two death-traps in close proximity to the vagina.

I have no doubt that, in determining the plan of the human body, Nature thought of healthy bodies; a physiological process for delivery; and the practice of sexual intercourse merely for the propagation of the species, and not as a pastime. As a determining factor in sepsis at the time of labour, provided there has been no interference and no examination on the part of the medical man or midwife, I am of opinion that the "external" area of operation—viz., vulva and perineum—plays an insignificant part. For some excellent observations on this point I would refer readers to Dr. Routh's remarks at the reading of Dr. Bonney's paper.[2]

I do not wish it to be understood that I minimise the importance of sterilising this area as far as possible. But I believe that the real danger zone begins inside the vulva and increases in danger the nearer we approach the placental site. If the presenting part could reach the perineum through a sterile canal I do not think the external area of operation would be a serious menace to the patient. It is precisely on this external area that most of the surgical care has been lavished with such disappointing results; while the sterility or otherwise of the far more dangerous zone from within the vulva to the placental site—the real operation area—has been passed over in silence and that area assumed to be surgically clean. I am of opinion that the reason why there is such a large amount of sepsis still rampant in parturition is *that the woman begins her labour with the vaginal canal, and sometimes the uterine canal, surgically unclean.*

Some Personal Reminiscences.

Before I adduce the reasons which lead me to hold this view and put forward the well-known clinical fact that proves it conclusively, I will recall the conditions under

[1] THE LANCET, 1919, i., 775.
[2] THE LANCET, 1919, i., 796.

which midwifery was practised when I was a student, so as to show that, in spite of the uncleanliness of the patients and the appalling conditions under which the majority of them lived, our results, though not quite so good as at the present day, were not so many points behind. It will help to show that, in spite of the vast improvements in housing and external cleanliness of the patient, and the scrupulous care that the doctor now takes to make himself and keep himself surgically clean during the conduct of labour, we have not succeeded in abolishing sepsis, but only in reducing it moderately. Such improvements apparently do not give the complete key to the conquest of puerperal sepsis.

Just 36 years ago I attended my first case of labour, in a mews off Gower-street. Students carried a midwifery bag, and in it were about half a dozen bottles, containing ergot, opium, chloral, sp. am. aromat., pure liquid carbolic acid, and perchloride of iron. A pot of carbolised vaseline, a Higginson's syringe, a perineum needle, and silver wire completed the equipment. Our district included some of the worst slums in London, and only those who lived and worked in them at that time can form any idea of what they were like.

The patient was prepared for the labour by having her clothes removed above the waist and her nightdress slipped on and tied up below the arms. Below the waist she very often retained her dress and petticoat. The bedspread consisted of an old blanket folded on brown paper, and the baby was usually wrapped in a petticoat when it arrived. Before examining the patient we removed our coats, washed our hands, and then rinsed them in 1 in 40 carbolic. The finger was anointed either with carbolised vaseline or with carbolic oil. The perineum and vulva were never cleansed before examination. The patient, as a rule, perambulated the room until the head came on to the perineum. Dress and petticoat were then loosened from the waist, and she got on to the bed. The dress and petticoat were drawn out of the way and the delivery took place. After the placenta had been expressed the nurse washed up the patient, and the soiled garments were pulled off. Those were the days of douches; and usually an antiseptic douche was given before we left. As a rule, the patient had douches for the first few days after labour.

A Puzzling Result.

Worse conditions for the patient can hardly be imagined; and the medical attendant was certainly neither aseptic nor rigorously antiseptic in his methods. In spite of this, no case of puerperal septicæmia occurred amongst the cases of the six men "on the list" for the month; nor did any case occur during my tenure of office as obstetric assistant. Of what we used to call sapræmia we had an abundance. The majority got well with vaginal douches, while a few required intra-uterine irrigation. Of deaths from puerperal sepsis, I am certain there were none, either while I was on the student midwifery list, or when I was in charge of the extern midwifery department. Of ophthalmia, we had plenty of examples; for we did not, at that time, wash out the eyes immediately after birth nor instil anything into them.

This is a puzzling result, if puerperal sepsis is invariably carried to the patient either by doctor or midwife, through carelessness in asepsis or antisepsis, or contracted through an uncleanly environment. These women ought to have died like flies, but they did not! They all made excellent recoveries. Far be it from me to underrate the urgent importance of surgical cleanliness for the successful conduct of labour and the safety of the patient. I only wish to throw up into relief the fact that it is precisely these conditions which have undergone such steady and vast improvement during the last 30 years with such disappointing results. They quite patently do not give the complete answer to the question that we are trying to solve; and we must therefore look around for some other clue. Dr. Bonney himself refers to the disappointment of the high hopes that were raised upon the introduction of trained midwives into obstetric practice. Some slight reduction of the mortality rate from sepsis followed; but once more the old experience reasserted itself, and the decline has not continued.

Condition of Maternal Passages.

Why has it come to a standstill? Why does sepsis continue to claim its yearly toll of victims amongst parturient women? The reason, I believe, is that the maternal passage—the "internal area of operation"—nearly always contains the germs of sepsis within itself, at the time of labour. The route along which the fœtus will have to travel, before it reaches the world, is practically never sterile.

On what do I base this assumption? *Simply on the notorious clinical fact of the prevalence of ophthalmia and conjunctivitis among children, within the first week of birth.*

We have succeeded to a large extent in suppressing the evidence of the existence of the infection by immediately washing out the baby's eyes with an antiseptic; but that does not alter the fact that the infection is there all the same in the maternal passage, and would have claimed its victim if we had not promptly intervened and destroyed it. Only let the nurse be careless in performing this duty and we shall not long be left in doubt about the reality of its existence.

Some dissentient may say: "What proof is there that this also is not an extraneous infection carried into the mother?" The proof consists in the fact that it may, and does, occur when there has been no interference in labour; and also, that the organism which produces the most virulent type of infection is the gonococcus. Most medical men would repudiate the suggestion that they possessed such a frequent and intimate association with this unpleasant invader as this hypothesis demands.

Now, what are the organisms that produce puerperal sepsis? They are varieties of streptococci, staphylococci, gonococci, and, as Dr. Bonney claims, also *Bacillus coli*.

What organisms cause ophthalmia? We know that the most virulent infection is due to the gonococcus, in which the conjunctival sacs become converted into bags of pus and sight is imperilled, unless the infection is promptly and vigorously dealt with. But not all cases of conjunctival infection after birth are due to this destructive organism. Everybody knows that there are all gradations of conjunctival inflammation after birth, varying from slight redness of the conjunctiva or inflammation with a minute drop of pus at the inner canthus occasionally during the day; or congestion, with thin muco-purulent discharge from the lids; or cases with a very small amount of discharge that dries on the ciliary margins and forms a powdery deposit. These cases are not ophthalmia neonatorum, but they are evidences of conjunctival infection by organisms in the vagina. Streptococci, staphylococci, and *Bacillus coli* may all produce conjunctivitis.

How the Infection is Carried.

Now, supposing that all these organisms do cause conjunctival infection of varying degree—and they most certainly can—what evidence is there that they are present in the vagina before labour? The evidence only requires that I shall produce proof either that they can be carried into the vagina by someone already infected, and acting as a carrier, or that they are transported either by the penis itself or from the area immediately adjacent to the vulva as it enters the genital canal for intercourse.

Of all venereal diseases gonorrhœa is the most prevalent, and it is one that in the majority of cases is incompletely cured. It is often associated with a secondary streptococcal infection; and it is now known that these organisms may persist for very long periods, either in the urethra or in the prostate or vesiculæ, long after all external evidence of the disease has ceased and the patient believes himself cured. He is not well, and may infect his wife and child with the organisms of which he is a carrier. I do not know what proportion of the male population, at some period or other of their lives, suffer from gonorrhœa; but, judging from medical histories gleaned in the course of ordinary clinical examinations, it must be pretty heavy.

The transportation of streptococci, staphylococci, and *Bacillus coli* into the vagina is very easy. The skin of the penis and that of the vulva and female perineum are probably the most heavily infected cutaneous surfaces in the body. The penis is grasped with unwashed and soiled hands, and must receive many and various organisms, including streptococci, staphylococci, and *B. coli*. The organ is within trousers of varying age, which in most men have a flora of their own. When we turn to the lady conditions are present for supplying the organisms, as the average vulva and perineum must be suitable culture beds.

Should any be still doubtful as to the possibility of *Bacillus coli* and streptococci being introduced into the vagina from without they will do well to ponder also the question of their invasion of the vagina from within the body. With intestinal stasis and oral sepsis of common occurrence amongst women, the invasion of the bowel wall by these organisms is frequent, whence excursions to other and various parts of the body result. We know that both these organisms attack the kidney and bladder from the bowel, whence they are excreted in the urine and pass through the meatus urinarius. Once at the meatus, are they not within the portals of the vagina? What these organisms can accomplish via the urine they can also probably accomplish by direct attack on uterus and vagina in conditions of intestinal sepsis. In fact, I think the day may come when some portion of the cases of puerperal septicæmia may be traced either to intestinal stasis or oral sepsis.

Evidence of Sepsis of the Vagina.

There is no gainsaying the fact that sexual intercourse is practised by most people without the smallest attention to the cleanliness of the organs concerned. It is quite clear that in this way organisms must be introduced into the vagina, and as *Bacillus coli*, streptococci, and staphylococci abound in the organs they must be introduced into the vagina during intercourse. Add to this the frequency of latent gonorrhœal and streptococcal infection of the male urethra, and the evidence of sepsis of the vagina becomes complete.

All this would be bad enough if it only occurred once during gestation. From inquiries made I am positive that the nauseous habit of sexual intercourse during pregnancy is the rule and not the exception, and that it is continued sometimes far on in gestation—at times, in fact, as long as mechanical conditions will allow. What would any surgeon say if he were asked to operate in an area that received the amount of soiling that is but the too common fate of the vagina? Yet this is what falls to the lot of the medical attendant at a confinement! I contend that, with our present methods of conducting labour, it is small wonder that disaster sometimes follows. The marvel is that accidents are not more frequent.

Some years ago I had a very conclusive proof of the capability of the uncleansed, but otherwise healthy, penis of causing puerperal sepsis. I attended a patient who had a perfectly normal labour. Until the morning of the eighth day recovery was uneventful and the temperature normal. On that day I was surprised to find the temperature between 100° and 101°. The vagina was washed out; on the ninth day the temperature was normal. On the tenth day it had again risen, and again the vagina was washed out. The temperature came down to normal, and remained so for two days, when it rose again. I was completely at a loss for an explanation of these fitful rises of temperature coming on after a period when the risk of puerperal sepsis was usually at an end. While debating these facts in my mind in the patient's bedroom I became aware that I was looking fixedly at a second pillow in line with her own. Without more ado I asked her if her husband had been occupying her bed since the end of the first week. I extorted a confession not only of that fact, but also that sexual intercourse had taken place on the nights preceding the morning rise of temperature. I had my little say and with it the trouble vanished.

The Conduct of Labour.

The problem, therefore, that the medical attendant has to solve is to deliver the child through a septic maternal passage, with a vulva and perineum also heavily infected. A portion of the problem has been already solved and has resulted in wiping off some part of the death-rate from sepsis, but part remains to answer still.

Concerning the surgical preparation of patient and attendant Dr. Bonney has dealt completely. One point as regards the toilet of the patient might be added—that the vulva should be shaved as for any other surgical operation. No doubt it would be a good deal opposed by patients, but I think it very important, in view of the impossibility of sterilising hair and the great danger of introducing septic organisms into the vagina, should interference be imperative. Should interference not be necessary this could be dispensed with.

What should be our attitude towards the vagina during the conduct of labour? Most certainly by every possible means we should avoid the necessity for internal examinations. Parturition is a physiological process, and in quite 95 per cent. of cases the patient is capable of delivering herself. No doubt when Nature placed the vagina in front of the anus and surrounded the vulva with hair she hoped that this fact would be recognised, and that no unnecessary interference with the genital passage would become the fashion during the performance of this physiological act. Labour is a reflex act, and can be successfully conducted, not only without medical assistance, but also independently of the volition of the patient. Several cases are on record where pregnant women with complete transverse lesions of the cord have successfully accomplished it. Dr. Amand Routh reported such a case some years ago, and quite recently Dr. Drummond Robinson reported another.

Avoidance of Internal Examinations.

It is well known that women who have delivered themselves before the arrival of the medical attendant very rarely come to any harm. This was in my mind when making the assertion above that—provided there had been no interference—the perineum and vulva play but a small part in the causation of sepsis. The rule in the conduct of labour ought to be to avoid interfering with the genital passage wherever possible. It matters not whether the perineum and vulva be made as far as possible aseptic, and the medical attendant's technique be also rigorously aseptic, if he is going to conduct the labour by frequent examinations carried up as far as the cervix, through a vagina which, in the majority of cases, is contaminated with a variety of organisms. The perfectly aseptic gloved finger, if the vagina is septic, is capable of carrying up organisms from its walls, and smearing them on the inside of the cervix, and thus bringing them within reach of the most dangerous zone of the operation area—the placental site. If my contention is correct that conjunctival infection of the child is proof of sepsis of the maternal passage, then it becomes evident that to introduce even an aseptic finger into the vagina and carry it up to the inside of the cervix is fraught with considerable risk and should only be done if unavoidable.

The anxiety in the minds of medical men as to the state of the os is deep-rooted and genuine; and no wonder, since from hospital days they have always been exhorted to pay attention to it, and examine its size, consistence, dilatability, &c., when called to a case of labour. I have known this anxiety spread even to a patient, who informed me on entering the room that I should find "the hoss riggid"! After looking at the anus and perineum, I was able to assure her that this time the "'oss was a'doin' 'is best," and she need not worry. I know nothing of the routine now followed by lying-in hospitals during the course of labour; but I suspect that no inconsiderable part of their success in reducing sepsis is due, not merely to rigorous asepsis of patient and attendant, but also to the avoidance of internal examinations.

As far back as 1885, when I was a resident student at the Rotunda Hospital, Dublin, no patient was allowed to be examined more than once during the course of labour; and then only after thorough preparation of hands and forearms with soap and water and nailbrush, followed by soaking the hands in perchloride of mercury solution for three minutes. I have no doubt our patients on the midwifery list, when we were students, escaped septicæmia because they usually summoned us late in the course of labour, when the head or presenting part was in the middle or lower part of the cavity of the pelvis and fairly through the os; when danger of inoculating the cervix by examination was over; or, frequently, the child was born before our arrival. It was also the time of douches; and usually the vagina was washed out after labour.

Nature's Method of Sterilising the Vagina.

I have tried to show the undesirability of vaginal examinations during labour, on account of the undeniable fact of sepsis in the maternal passage: as evidenced by conjunctival infection in the newly-born child. It can be shown also that, in making such examinations, we are reversing and largely annulling the methods that nature brings into play to sterilise the vagina and wash out intruding organisms.

One of the earliest changes in the uterus, on conception, is œdema of the cervix, which steadily progresses throughout gestation. I do not think this phenomenon is the result of pressure, because it starts almost with impregnation. What-

ever its cause, my opinion is that it subserves a purpose over and above that of increasing the dilatability of the cervix. With the progress of the presenting part the cervix becomes gradually dilated and subjected to an increasing pressure. As a result vessels are ruptured, and tears small or large occur. The torn vessels are sealed, and from them exudes a copious flow of serum mixed with extravasated blood. The purpose of this serous exudation is, doubtless, physiological, and it is in all probability bactericidal, resembling the flow of lymph after wounds in other parts. Its rôle is probably partly to cleanse the vagina and partly bactericidal to retained organisms. It is tempting to suggest that, when impregnation occurs, there is a local retention of salt in the tissues of the cervix, which attracts fluid to itself and stores up a lymphagogue, to be put to practical use during labour.

While all this is a physiological process and wholly beneficial to the patient, it becomes far otherwise if vaginal examinations are made the rule in labour. Instead of a protection, it may be a menace to life. Granting that the vagina must, in most cases, be a canal harbouring noxious organisms at the time of labour, the danger of introducing a finger and carrying it up to a wounded cervix is apparent. If the finger is also introduced inside the cervix and swept round between the bag of membranes and the uterine wall, we may be simply implanting colonies of organisms on the uterine wall, and with nothing between them and the uterine sinuses. Now, the organisms which we have shown reason to believe most likely to gain entrance to the vaginal canal are gonococci, streptococci, staphylococci, and *Bacillus coli*. Of these four the one with the power of causing a specific effect is the gonococcus; but it shares with the others the ability of producing non-specific inflammations in other parts of the body. All of them may enter the blood stream, and, by causing bacteriæmia, set up inflammatory foci in various tissues. How careful, then, ought we to be to avoid bringing them into contact with wounded surfaces. Of all possible channels for the entry of organisms vascular lymphatics are easily the first.

Some Guiding Rules.

If the facts that I have endeavoured to make plain are true, what should be our method in the conduct of a case of pregnancy and labour? In my opinion it should be as follows:—

1. The patient should have a general physical examination, and the state of her health should be accurately gauged.

2. At the time of examination the urine should be examined, and the examination should be repeated at intervals of two months.

3. The external diameters and circumference of the pelvis should be taken; also indications of marked lateral curvature, old angular curvature, and past rickets should be looked for.

4. A careful abdominal examination should be made between the seventh and eighth months, or later if the pelvic measurements are normal, to ascertain the position of uterus and contained fœtus. By training this method yields accurate results, and the presentation can be determined with practical certainty. The position of the fœtal heart sounds in this connexion is of great importance and should be always noted.

5. If the patient is a multipara the history of previous confinements should be obtained.

Armed with this knowledge it will be possible to conduct the vast majority of labour cases without vaginal examination.

Up to the present it has been too much the fashion to recognise only external sources of infection and the methods by which they may gain entrance to the maternal passages during labour. The equally important fact that vaginal sepsis is already present when labour starts, as proved by conjunctival infection in the newly-born child, has been waived as absurd and this important clinical fact not rated at its proper significance and gravity. A few will grudgingly admit that on rare occasions autoinfection may occur. Not on rare occasions, I submit, but on every occasion, should the possibility be held in mind, and a septic canal be as seldom interfered with as the safety of the patient will allow.

Dr. William Ewart Gye announces that he has formally relinquished the surname of Bullock and assumed the name of Gye. His address remains as in the Medical Register, 1919.

KINEPLASTIC AMPUTATIONS.

BY M. FITZMAURICE-KELLY, F.R.C.S. ENG.,
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THE object of this paper, which is a preliminary communication, is to present briefly the methods employed, and the results obtained, in a series of kineplastic amputations recently performed at the Pavilion Hospital, Brighton. The subject has, so far as I am aware, found a very small place hitherto in British—or French—surgical literature and practice; but the pitiable plight of men who have lost an arm seems to call for a very thorough trial of any method which holds out the hope of better things, while the results so far obtained justify the expectation that the method may be found of great value.

Selected Cases.

The cases selected for trial were, in the first instance, those with amputation stumps which were unsuitable for the fitting of an artificial limb; short forearm stumps—two to three inches below the elbow, measured from the tip of the olecranon process—or stumps a little longer, with partial and incurable limitation of movement in the elbow-joint. Later, in longer forearm stumps, tunnelisation of the muscles was tried, and finally amputations through the elbow- and wrist-joints were operated upon by a method arising out of previous experience. It is not my present intention to lay down definite indications for kineplastic amputation; I think it may fairly be claimed that the cases so far selected had nothing to lose by the operation and much to gain in the event of success. And there now seems ground for hope that the advantages will be great enough to justify the sacrifice in length in stumps hitherto rated as useful.

Literature.

In starting this series, which at the time of writing includes 13 cases operated on in the last eight weeks, I found considerable difficulty in getting much light and leading from the literature at my command. By far the most valuable paper was Vanghetti's[1] on General Principles; Pellegrini's[2] contribution contained useful suggestions on the technique of tunnelisation, while critical abstracts from German surgical literature in the *Medical Supplements* issued by the Medical Research Committee gave valuable hints, chiefly on methods which it seemed desirable to avoid. For the rest—and I imagine it will be the case with most surgeons—I had to devise my own technique and modify it as the particular cases demanded.

Plastic Motors: Technique.

The forms of plastic motors attempted have been two: club-shaped motors, built up of muscles with their bony insertion, or an adventitious bony attachment, and loop motors, made by constructing a canal or tunnel lined with skin and surrounded with muscle or tendons. Of the 13 cases operated on, in 4 club-shaped motors alone have been made (two each in 3 cases and three in the fourth); in 3 cases skin tunnels only have been constructed (one in each case), while in the remaining 6 cases, two club-shaped motors and one tunnel have been made in each case. In describing the technique, it will be simplest to deal first with the tunnelisation method, and then to give the various methods used to make the club motors.

Loop motors.—In making the skin canals, the double-pedicle method suggested by Pellegrini has, in the main, been followed. The length of the canal required will vary according as muscle or tendon is to be used for the loop; but there is an advantage in making it short and wide, as the blood- and nerve-supply is better, and the tendency to excoriation less. Two incisions are made of the length required, parallel with one another, and 2 inches apart. From the ends of each cut oblique diverging incisions are made in a proximal direction. The lower end of the area so marked out is dissected up, with the subcutaneous tissue down to the deep fascia, and the upper edge is freed until the skin can be rolled up to form a canal by union of the edges of the two original incisions. These edges are then united with a subcuticular suture of fine silkworm gut and reinforced with a few points of catgut in the subcutaneous tissue. The subcuticular suture gives accurate apposition and is easily removed. The canal being thus formed, the deep fascia is opened

[1] Archives Médicales Belges, June, 1918, p. 663.
[2] Ibid., p. 675.

above and below, the muscle or tendons which it is proposed to place superficial to it selected, brought over, and sutured to the deeper parts on the distal side of the canal. It is important that both the superficial and deep tendons or muscles should be liberated from attachments or adhesions below and the canal itself freed from attachment to the deep fascia, in order to obtain the greatest possible freedom of movement and the widest excursion. The motor so formed is then covered in by a plastic operation, gliding flaps from above and below, and a piece of gauze packing passed through the canal.

Club motors.—The making of the club motors is more difficult, and can perhaps be most easily described as done at the elbow, where powerful muscles with their bony insertions are available. In a typical case, where it is intended to use the triceps and the brachialis anticus, the operation is best performed from behind forwards, as this mode of access keeps the structures it is intended to preserve out of harm's way until the latest possible moment. A tourniquet is applied, and a posterior flap is first marked out with its base equal to half the diameter of the limb opposite the condyles, and including all the available skin on the back of the stump. The incisions will probably need to be prolonged upwards at a later stage. This flap is dissected back to the base of the olecranon process; the latter is sawn through and the joint so opened from behind. The lateral attachments of the olecranon are severed, the posterior capsule divided, and the triceps dissected up from the back of the humerus to a distance of about 3½ inches above the condyles. The skin covering the superficial aspect of the muscle is left undisturbed. The muscle and its attachment, thus isolated, are wrapped in gauze. The coronoid process is then detached by a saw-cut carried downwards and forwards from the interior of the joint, and the brachialis anticus carefully isolated from the structures on either side. The biceps tendon, if it has not already been utilised to build another motor, is then divided, and the remaining structures —supinator longus and the muscles arising from the condyles—dissected away, all the skin on the anterior surface of the stump being preserved. The brachialis anticus is then separated from the humerus to the same level as the triceps and the humerus then sawn across. The tourniquet is removed, all bleeding vessels tied, and all nerves shortened. The biceps, if available, is stitched to the brachialis anticus, and the two motors thus formed are clothed with skin. In doing this two points need careful attention: one is to place the skin stitches very accurately round the neck of the motor, where pressure will ultimately be taken, and the other is to fix the bony insertion firmly to the skin to prevent retraction. The best method of doing this is by an anchor stitch of stout silkworm gut, which transfixes the tendon close to its insertion and the connective tissue on either side of the bone; the two ends issue through the skin close to the apex of the motor, about three-quarters of an inch apart, and are tied on a piece of drainage-tube threaded on to one end. These should not be tied tightly and should be retained, if possible, for 10 or 12 days.

A certain amount of oozing is inevitable from the large wound involved in this operation; the method of drainage employed is by strands of silkworm gut. About six strands are knotted together, and three or four of these are passed in various directions, one from base to apex of each motor. These are removed after 48 hours, and the wound is not dressed again until the tenth day, when the stitches are removed.

The Two Methods Combined.

The methods above described—tunnelisation and club motors—have been combined in six of my cases.

First, a skin tunnel was made in front of the arm, just above the bend of the elbow. The biceps tendon was split after being divided low in the wound, and the superficial half brought in front of the tunnel and sutured to the deep part. Then motors of the club type were made of the triceps and brachialis anticus, the plastic operation to cover the canal being left to the end, when it was made easy by taking up the slack skin from the end of the stump. The object is to use the biceps as a supinator of the artificial hand, but none of the cases are sufficiently advanced yet for a definite opinion to be expressed as to whether the motor will develop sufficient power or independence of action to be effective, and in my most recent case I made a third club motor by turning up a U-shaped flap from the front of the elbow, detaching the tubercle of the radius and shortening the biceps tendon by folding it in a Z upon itself.

Another Modification in Technique.

Yet another modification in the technique, which seems full of promise and of very wide application.

In two cases, amputations through the elbow- and wrist-joints respectively, the adventitious adhesions of the muscles were used to make club motors. In the first, pieces of the lower end of the humerus, with the cut ends of the brachialis anticus and triceps still adherent to them, were chiselled off the anterior and posterior surfaces of the end of the bone; the muscles were then dissected up as before, and the shaft sawn through at a higher level. In the latter, pieces of the lower end of the radius were similarly preserved with the flexors and extensors of the fingers attached, and the overlying skin undisturbed. Both healed well and show movement, but are not yet sound enough to take a load.

Review of the Methods Adopted.

Reviewing the cases, as far as I have gone, I am not favourably impressed with the possibilities of the skin tunnels. Others who have used the method—notably Sauerbruch, Drüner, and other German surgeons, using a technique similar to Rochet's urethroplasty—have had trouble from excoriation of the canals, and though this risk is diminished by making short wide tunnels with a good blood- and nerve-supply, it still exists. More important is their limited range and limited power, as compared with the club motors, and I am inclined to doubt whether they will take a permanent place in kineplastic surgery.

On the other hand, there seems good reason to hope much from the club motors, especially when multiple, and including a pair of antagonistic action. The motor being wholly exteriorised, the covering remains healthy and able to bear pressure, and about the power developed there is, happily, no doubt. That is, after all, as one would have guessed, as the preservation of the bony insertion of a muscle means the concentration of the force it exerts in one available point. And, as far as I have tested them, they bear pressure well, even within a few weeks of the operation. One of my early cases is now on a temporary training apparatus made out of a Thomas arm-splint, working the muscles against an elastic resistance, and, tested with a steelyard inserted in place of the indiarubber tubing, he registered 15 lb. with one motor and 21 lb. with the other at the first attempt. The arm still appears quite wasted, and is, I am sure, capable of much greater development. And several of the later cases are much more promising—the motors have been made longer, and I propose, in one or two of the early cases, to remove an inch more of the humerus to increase the range of the motors.

The apparatus used to attach the motors is a metal collar with hinge and screw adjustment, similar to Putti's. They are made for me in the temporary limb department of the Pavilion Hospital, and coated with vulcanite by a dental mechanic. I have found that it is best that they should not fit accurately, as if they do marked congestion of the motor is caused, and I am now having them made circular for motors which are oval in section, and vice versa. The motor then keeps its colour perfectly, and the patient is more comfortable.

All the cases in the present series are arm amputations, but though the much more satisfactory prostheses available make the problem less urgent in the lower limb, I think there are certain cases in which it is worth while. I refer to the group of short and unsatisfactory stumps below the knee. Some of these, owing to deficient movement, cannot be fitted with a limb; others with very short stumps, after trying a kneeling leg and finding it unsatisfactory, return for re-amputation above the knee. In some of these cases, which I now have under my care, I propose to build motors of the quadriceps and hamstrings, so as to give the patient voluntary control of the knee-joint. It should be easier to do, and easier to fit, than the operations in the region of the elbow.

I regret, and apologise for, the incomplete state in which this work is presented, but judging from the difficulty in coming at any records in English surgical literature, the number of cases on which these observations are based constitutes an exceptional experience. And already I feel very strongly that the club-motor method—and especially its extension by the use of adventitious bony attachments —is that which holds out hope for the future, and it is in the hope that English surgeons will give the method a more extended trial that I present my conclusions in their p esent form. I hope, later in the year, to bring forward a more complete record, and to show cases.

I have to acknowledge my deep indebtedness to Mr. Muirhead Little, on whose representations this work was undertaken, and whose advice and help in the selection of cases, and in unearthing literature, have been invaluable. Also, to my colleagues at the Pavilion Hospital, Brighton, for much encouragement and help.

OBSERVATIONS ON
LENGTHENING OF AMPUTATION STUMPS.

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AMPUTATIONS in which the femur is sectioned less than three inches below the lesser trochanter are most unsatisfactory for fitting with artificial legs. The various suggestions made for overcoming the difficulties have not been very successful. As far as I know, no surgeon has hitherto attempted to lengthen the stump. The following case shows that such a procedure is possible.

Account of Case.

Pte. B. was admitted to the Granville Canadian Special Hospital, Buxton, on April 15th, 1918, with amputation of thigh at about junction of upper and middle thirds. The amputation had been performed with equal anterior and posterior flaps; wound had healed, except in centre, where a discharging sinus led to dead bone. On May 3rd, 1918, operation for the osteomyelitis; the terminal inch of the femur was necrotic and had to be removed, thus the bone extended only two and a quarter inches below lesser trochanter. The flaps were sutured back in position; wound healed in two months. Patient was then fitted with a temporary artificial limb, but the femur was so short that when he flexed the hip the end of the bone slipped forward over the top of the socket. We were confronted with the necessity of fitting him with the tilting-table leg or of lengthening the femur.

On Feb. 27th, 1919, he was operated upon again. The flaps were reflected as before and the incision continued up the outer side of the thigh as far as the great trochanter and deepened until the bone was exposed. The muscles were then reflected until the outer half of the femur was laid bare. With an osteotome applied in the sagittal plane a half of the terminal three and a half inches of the shaft of the bone was cut free. This piece of bone was slid downwards so as to lengthen the femur by two and a half inches, and was then fastened by two long screws of beef-bone.[1] The flaps were then dissected up sufficiently far to allow them to be drawn down and closed over the end of the bone. The wound healed by primary union, except for a hæmatoma, which opened spontaneously and disappeared without infection, otherwise recovery uneventful.

Two months later the fragments were solidly united and the patient commenced active exercise of the stump to increase the density of the bone. He is now wearing the ordinary artificial limb and has a very satisfactory stump.

Remarks.

This case resulted in several observations. Owing to osteoporosis the fixation was none too good. As solid fixation of the fragments is imperative, it would be wise to convert the screws into bolts by small nuts made of beef-bone. Heavy silver wire, or the brass ribbon used by Putti, or even metal bolts would serve, but the beef-bone has the advantage[2] of uniting rapidly to the living bone and of undergoing absorption and replacement, as does an ordinary autogenous graft.

The extensive splitting of the bone led to rather profuse hæmorrhage. This could be avoided by substituting for the method described an ordinary inlay bone-graft or a graft driven into the medullary cavity. We have one case of amputation of the leg in which the fibula will be used after splitting it into two halves to allow the endosteal osteoblasts to be bathed in lymph, either as an inlay or as a medullary graft, lengthening the stump an inch and a quarter. In this case the flaps are sufficiently long and the fibula is much longer than the tibia which was sectioned just below the tubercle.

The bone in the stump may be too short to allow an operation as such described, and it may not be wise to remove a graft from the other leg. In such a case a suitable graft might be obtained from a recently amputated limb. We have satisfied ourselves that bone transplanted from one animal to another of the same species—at any rate, in dogs—retains vitality in the same sense as does an ordinary autogenous graft—that is, those cells which are exposed on the surfaces to a supply of lymph survive and proliferate, and ultimately accomplish the absorption and replacement of the graft. It would be well, in transplanting bone from another patient or from a recently amputated limb, to make sure that the cells of the one patient are capable of living in the lymph of the other, as indicated by the testing of their bloods for hæmolysis and agglutination. A recent paper by Masson indicates that Thiersch skin-grafts from a donor whose blood is not compatible with that of the patient do not live; if the bloods are compatible the transplantation is successful.

Up to now the operation described appears successful, but failure is still possible owing to absorption of the graft. Only time can show, and this paper is but a preliminary report. There is reason to believe, however, that such grafts will not disappear. When autogenous bone is transplanted into the muscles of the back in animals the bone ultimately disappears. But if such grafts are so placed that they have work to perform, as when used to bridge gaps in the long bones, they ultimately increase in thickness until the bone is restored to approximately its normal outline. Evidently the fate of such transplants is dependent upon the work performed. Up to the present the X ray shows no evidence of disappearance of the graft, and a mass of new bone has restored the normal thickness of the shaft where the graft was removed, and has also increased the thickness of the graft itself.

Among our wounded are many who could have such an operation done, for we have seen men passing through this hospital who had very short bones in their stumps and yet ample flaps of skin to allow bone-lengthening. It has been the practice to remove these redundant flaps by re-amputation. Again, if a successful lengthening of the bone can be looked forward to, the method of primary amputation, when short bones are inevitable, should be changed. The skin-flaps should be left very long, so that later sufficient skin will be available to cover the graft properly. This would also apply in civil practice.

[1] Canadian Medical Journal of Medicine and Surgery, May, 1916.
[2] Journal A.M.A., April 20th, 1918, lxx., 1134–40.

A CASE OF
CARCINOMA OF THE PELVIC COLON
TREATED BY EXCISION AND ANASTOMOSIS.

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THE following case of apparent cure following excision of a carcinomatous stricture of the pelvic colon may be of interest inasmuch as there is no evidence of recurrence after six years.

The Case Described.

A man, aged 47, was admitted into St. George's Hospital on July 4th, 1913, for intestinal obstruction. He had apparently been absolutely well until four days previously; he then noticed a certain amount of colicky pain and had absolute constipation, which was not relieved by drugs or enemata. On examination he did not look ill. Pulse 88, temperature normal. Tongue slightly furred. The abdomen was enormously distended and was tympanitic all over. Rectal examination was negative. An attempt was made by means of further enemata to open the bowels but without result, and it was clear that the obstruction was complete. The same evening I opened the abdomen in the middle line; all the intestines were greatly distended, the cæcum being enormous and showing commencing splitting of the serous coat. The cause of the obstruction was an annular stricture of the pelvic colon just above the pelvic floor; the growth was movable and there appeared to be a prospect of excising it with good results if the man recovered from the intestinal distension. The mid-line incision was therefore closed and a second muscle-splitting incision made over the cæcum; as soon as the peritoneum had been incised the cæcum bulged out and burst partly externally and partly intraperitoneally; a Paul's tube was sewn into the tear in the cæcum and the peritoneal cavity was cleansed locally as far as possible. In spite of the enormous distension present before the operation and the peritoneal infection he rapidly improved, so that three weeks later a second laparotomy was performed with the idea of excising the growth. On examination the growth, which resembled a tight ligature round the gut, was found to be quite freely movable, and there appeared to be no glandular involvement. It was situated so near the pelvic floor that the feasibility of an anastomosis seemed doubtful. However, after clamping and dividing the gut above the growth and dividing the mesentery, it was found possible to draw the growth and the distal part of the gut up and divide it about three-quarters of an inch above the pelvic floor. An end-to-end anastomosis

was then performed by means of a double layer of interrupted stitches. This proved to be a matter of very great difficulty and could only be effected by the use of the high Trendelenburg position and after partial division of the left rectus abdominis muscle to allow of easier access. Owing to the likelihood of leakage from the suture line, a rubber drain was left in for the first three days. Enemata were commenced on the eighth day after operation, and small actions were obtained every other day. On the twenty-fourth day after the excision the cæcostomy was closed by operation, and normal actions of the bowels followed. The growth proved to be a columnar-celled carcinoma; some small glands in the mesentery were not involved.

No Evidence of Recurrence.

I saw the patient every few months up to the summer of 1914. Owing to the war I was unable to see him again until May, 1919, when he was in very good health and had no intestinal symptoms of any sort. Abdominal examination was negative, and there was no local evidence of recurrence.

In this case the absence of prodromal symptoms before the obstruction became absolute is remarkable, and the man must be regarded as extremely fortunate to have survived the enormous distension found at the first operation and the effects of the rupture of the cæcum.

A NOTE ON
SEGMENTAL HYPERALGESIA IN MALARIA.

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IN the course of 1918 I made a series of observations on segmental hyperalgesia in trench fever, which were embodied in a paper published in THE LANCET.[1] The substance of them was briefly as follows:—

If a series of light pin-pricks are made on the skin in a direction which crosses a large number of areas of segmental nerve distribution, it will be found in patients suffering from trench fever that three groups of areas are unusually sensitive, particularly as to their borders. The groups are an upper one containing the eighth cervical and first dorsal areas, a middle one containing the seventh dorsal area, and a lower one containing all the lumbar areas. The areas are not found in every case, and in positive cases only parts of these groups may be hyperalgesic, but something of the kind is present in the great majority.

I noted in this paper that in 18 cases of *malaria* which had been examined similar areas were found. I have since had the opportunity of examining patients suffering from malaria in very large numbers, both at a camp in France, where patients were treated who had been infected in other theatres of war, and also in Egypt and Palestine, where malaria was incomparably the highest cause of sickness during my service there. I was able to find the same areas of hyperalgesia in the great majority of cases, and they differ in no important particular from those found in trench fever, and such minor variations as were present are stated below.

Analysis of Results.

The following is an analysis of the results found in 120 cases examined consecutively for this sign.

Cases examined, 120. Positive 83 (70 per cent.). Negative 37 (30 per cent.). This is a lower incidence than in trench fever, where I found only five negative in 73 cases, but malaria is capable of far more certain recognition, and I came to rely on the presence of these areas for the differential diagnosis of trench fever.

The areas found hyperalgesic in the malarial cases were these:

Upper group ...	C. 8	... ...	9	44 = 50% of positive cases.
	D. 1	... ...	35	
Middle group ...	D. 7 or 8	... ...	83 = 100%	,, ,,
Lower group ...	L. 1, 2, 3, 4, 5		42	49 = 59% ,, ,,
	L (incomplete)		7	

Full distribution C. 8, D. 1; D. 7; L. 1, 2, 3, 4, 5, 8 cases = 10% of positive cases.

It was remarked that these areas could never be demonstrated while a rigor was in progress.

In 68 positive cases of trench fever the results were these:

Upper group	... 39 = 57%	Lower group	... 67 = 99%
Middle group	... 68 = 100%	Full distribution	24 = 35%

The only differences are the more frequent escape of the lumbars in malaria, and the consequent reduction in the number of cases of complete distribution.

The middle group shows a few minor differences; in trench fever it is rare to find anything but D.7 or D.7 and 8 involved, but in the malarial cases D. 6 was found once, D. 8 17 times, and D. 9 once, also in nine cases the hyperalgesia was unilateral, which was hardly ever found in trench fever.

Conclusion.

The similarity between the signs as found in the two disorders remains very striking and adds one more to the many likenesses between them: one being mosquito-borne and the other louse-borne; one admittedly protozoal, and the latter probably so from its cyclic character and its capacity for lying latent; both associated with enlargement of the spleen.

It is necessary, however, for either disease to be excluded before the presence of such segmental hyperalgesia can be allowed weight in the diagnosis of the other.

[1] An Address on Sensory Changes in the Diagnosis of Trench Fever, THE LANCET, Oct. 5th, 1918.

PARATYPHOID INFECTIONS OF THE PLEURA.

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PNEUMONIA, and especially bronchitis, is not an uncommon complication of paratyphoid fever[1]; but serofibrinous or purulent pleurisy due to infection with the paratyphoid bacilli is apparently so rare that the following cases deserve recording.

CASE 1.—F. L., a man aged 38, was admitted to the David Lewis Northern Hospital, Liverpool, on Feb. 12th, 1918, after being crushed between a wagon and a wall. The left side was strapped. During the 11 days he was in the surgical ward he had some diarrhœa, and typhoid was suspected. He was then transferred to a medical ward with signs of consolidation at the left base. As the breath sounds were very feeble, although there was no displacement of the heart, a needle was inserted into the pleura and 5 c.cm. slightly turbid fluid were obtained.

On bacteriological examination a motile Gram-negative, indol-negative organism was present in pure culture, which gave the characteristic reactions of paratyphoid B in lactose, glucose, maltose, mannite, and saccharose. It agglutinated with the Lister Institute paratyphoid B serum 1 – 6500, but not with the paratyphoid A or typhoid serum.

The patient's serum agglutinated his own organism 1 – 1250, and the results with the Oxford standard emulsions were: typhoid – 1 – 25, paratyphoid A – 1 – 25, paratyphoid B + 1 – 1250. The fæces were not examined.

Throughout his stay in the medical ward the temperature never rose above 100·4° F. and the respirations above 30, but the pulse averaged about 100. Treated on general lines he made an uninterrupted recovery without any further operative treatment.

CASE 2.—M. W., a woman aged 24, was admitted to the David Lewis Northern Hospital, Liverpool, on July 22nd, 1918. She stated that three months previously she suffered from "influenza," and recently had pain in the left side. There were obvious signs of pleural effusion, her temperature was 104° F., pulse 124, respirations 44. On July 23rd 2½ pints of clear fluid were removed by aspiration. On August 1st the chest was again explored, and as pus was found the empyema was opened; the patient made an uninterrupted recovery. The fluid was examined after aspiration and twice subsequently when the chest had been opened. It always contained a streptococcus longus and a bacillus which gave the characteristic cultural tests of paratyphoid B, it agglutinated with the Oxford paratyphoid serum up to 1 – 40, titre 1 – 100.

The patient's serum agglutinated her own organism 1 – 96, and the results with the Oxford standard emulsions were: typhoid – 1 – 25, paratyphoid A – 1 – 25, paratyphoid B + 1 – 50. The fæces were examined with negative results.

Cases Reported by Other Observers.

Lenhartz (1910) published the first case of pleurisy in paratyphoid fever; here the effusion was serous and contained paratyphoid B bacilli in pure culture.

[1] Dawson and Whittington, 1916; Willcox, 1916; Hurst, 1917.

Costa and Clavelin (1911) described the case of a man who developed empyema due to paratyphoid B five weeks after the onset of the fever. They also mention two of serous effusion described by R. Schmidt and Sacquépée and Chevrel respectively—here the type of paratyphoid bacillus is not stated, but it is almost certainly B.

According to Schottmüller (1911) pleurisy is often met with in paratyphoid fever, and even when suppurating will clear up with repeated aspirations. He alludes to a case by Lorey where the effusion occurred during a "long-drawn-out" attack of paratyphoid B fever.

War Cases.

Several others have been recorded during the war, notably by the French authors.

Joltrain and Petitjean noted that during the 1915-16 epidemic of enteric in the French Army pleural complication were rare amongst the typhoid cases—viz., 2-4 per cent., but common amongst the paratyphoid cases—viz., 19 cases in 310—i.e., 6 per cent. In the latter pleurisy was purulent in 2 per cent., dry in 2 per cent., and sero-fibrinous in the rest. Paratyphoid B was isolated—apparently from the blood—in all the cases except one, where paratyphoid A was found. The pleurisy usually developed in cases of atypical or latent paratyphoid; it was sometimes the first symptom. The exudate in the sero-fibrinous cases contained a preponderance of lymphocytes and endothelial plates.

Jean Minet (1915) carefully described 8 cases of paratyphoid infection with complications in the "lung and pleura"; the complication was usually bronchitis. In two, viz., Nos. 6 and 7, there were definite signs of effusion. In No. 7, some drops of citron colour liquid removed by aspiration were sterile. In No. 8 paratyphoid B bacilli were isolated from the sputum and from the blood.

Florenzano (1916) reports a case of pleurisy with effusion of clear yellow fluid which gave a positive agglutination to paratyphoid B. The patient later developed symptoms of typhoid.

Two other observers have noted paratyphoid A infections. (1) Giroux (1915). Here the patient developed pleurisy in the third week of paratyphoid; the fluid was first serous, then hæmorrhagic, and finally purulent; the bacilli were isolated from the empyema, but two blood cultures were negative. (2) Weeks (1916). Here the patient, who was also a soldier, "had diarrhœa for a fortnight and was apparently well, when two weeks before admission to hospital he was seized with acute pain in the back." He subsequently developed empyema, which was opened, and finally recovered.

A case of pleurisy due to an "*inagglutinable* paratyphoid B" bacillus is worth alluding to.

Pte. W. received a gunshot wound in the region of the left rib on Nov. 17th, 1916, after which he lay for 24 hours in water. He was transferred to Toxteth Military Hospital, Liverpool, under the care of Captain J. R. Logan. The bullet was removed at Toxteth in January, 1917; it had apparently damaged the pleura, but not the lung. An empyema developed, which was aspirated on three occasions in two months, after which he recovered. Each sample of pus contained in pure culture a persistently "*inagglutinable* paratyphoid B" organism; it did not absorb paratyphoid agglutinins; the patient's serum agglutinated it up to 1-128. The same organism was isolated from the urine once. Further particulars regarding it are given elsewhere.[2]

Civilian Cases.

In conclusion, it is noteworthy that both our cases of typical paratyphoid B. pleurisy occurred in civilians.

During the years February, 1917, to February, 1919, the sera of about 40 civilian patients, excluding sailors, with enteric-like symptoms were tested in this laboratory with the Oxford standard emulsions. The patients were in the Liverpool Royal Infirmary and the Northern Hospital; none had been inoculated with T. or T.A.B. vaccine. Twenty—i.e., 8 men, 10 women, and 2 children—agglutinated typhoid only, the lowest titres being 1-25 one case, 1-50 two cases, while the rest ranged from 1-250 to 1-5000. On the other hand, five cases agglutinated paratyphoid B. only—viz., W., adult male + 1-50; M., adult male, hospital dispenser, + 1-1000; W., boy, + 1-50; E., boy, + 1-500; M., adult female + 1-25 +. The rest were negative to all three emulsions. Including the two pleurisy cases, 27 patients gave some agglutination either to typhoid or paratyphoid.

[2] Glynn, A. L. Robinson, &c., 1917.

Excluding the two cases] with titres of + 1-25 (typhoid) and + 1 - 25 + (paratyphoid B), the clinical history and agglutination results indicate that 19 were almost certainly typhoid and six almost certainly paratyphoid B. These statistics are obviously based on too few cases to afford more than a very rough indication of incidence, but a proportion of approximately 1 of paratyphoid to 4 of typhoid is higher than most medical men or public health authorities would expect.

Nevertheless, there has undoubtedly been a relative increase in the number of cases of enteric[3] diagnosed as paratyphoid amongst the civilian population, since the outbreak of war. This increase is probably partly *real*, and due to the presence of soldiers or sailors with paratyphoid, most probably carriers who have escaped detection by the routine bacteriological examinations before discharge from hospital. The paratyphoid outbreak at Reading amongst civilians was probably due to infected soldiers (Donaldson, 1916). The increase is also partly *apparent* and due to improved serological and bacteriological technique, especially the former.

Dr. E. W. Hope, medical officer of health for the city of Liverpool, kindly informed us that during the years 1907-08, 929 civilians were notified as suffering from enteric or typhoid, and none from paratyphoid, while during 1917-18, 91 civilians were notified as suffering from enteric or typhoid and four from paratyphoid. Thus the number of paratyphoid cases notified in the whole city of Liverpool is, two, if not three, less in approximately the same period than those diagnosed serologically or bacteriologically in two hospitals where there were only 19 or 20 cases of typhoid. This discrepancy is undoubtedly explained by the fact that the medical man usually diagnoses his patient on clinical grounds only, and hastens to notify him as enteric or typhoid before a proper bacteriological investigation. If the patient is subsequently proved to be paratyphoid, the original notification is usually not corrected.

Thus the official figures of the relative number of typhoid and paratyphoid cases among civilians will be misleading until they are invariably controlled by the bacteriologist.

We are indebted to Mr. Hugh Smith for assistance in the bacteriological work.

For an interesting review of Typhoid Infections of the Pleura see a recent annotation in THE LANCET.

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SMALL-POX NOTES FOR PRACTITIONERS.

BY W. McCONNEL WANKLYN, B.A. CANTAB., M.R.C.S., L.R.C.P., D.P.H.,

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IT may be a service to colleagues in practice who have been unable to keep in touch with the subject to note how small-pox stands at present, and give some brief notes on diagnosis. A list of sources of further information is added.

This year there have been cases of small-pox in London, Liverpool, Bootle, Bebington, South Shields, Hartlepool, Middlesbrough, Lincoln, Wisbech, Ilford, Darlington, Pontefract, Featherstone, Bracebridge, Bury St. Edmunds, Herefordshire, Amersham, Chorley Wood, Bishops Stortford, East Ham, Southampton, Weymouth, Jarrow, Barnard Castle, Hull, Derby, Plymouth, Cowes, Strood, Mitcham, Penge, Southend, Gravesend. There has been an unusual prevalence.

Previous Epidemics.

Small-pox was last widely prevalent in England about the year 1902, when there were about 8,000 cases in London. It

[3] "Enteric Fever:—Varieties: (*a*) Typhoid Fever; (*b*) Paratyphoid Fever." See 1916 edition Nomenclature and Classification of Diseases, Royal College of Physicians, THE LANCET, 1916, i., 887.

died down through 1903 and 1904, and has been almost quiescent until now. Previously to that there was a moderate outburst of it in 1893, about 2400 cases in London. Previously to that again, it was severe in 1885 and 1884, in each of which years there were about 6000 cases. In 1881 there were 6000 cases in London; prior to 1885 in London it was constantly prevalent, often in the thousands per annum for years together. In 1871, a very heavy year, there were 13,000 cases in London.

There has never been recorded before a period of small-pox quiescence so long as from 1903 to 1919, i.e. 16 years. The previous longest quiet interval was about 8 years. Prophecy of when small-pox will be epidemic again is futile; the practical thing is to be prepared for whatever may come. All that can be said is that it is more prevalent than usual this year.

Importations from Abroad.

At present, as often as it occurs in our country, so often it is extinguished; infection appears neither to remain nor seriously to spread. But it is being continually reintroduced from abroad, from ports such as Oporto, Lisbon, Bombay, Salonica, Alexandria, Naples. Many of the recent importations have been from European and nearer Eastern ports. Soldiers and sailors have been importers of infection. Many of these have been stopped at the ports. Others, however, and the most dangerous, are those who come through in the incubation stage, and are settled at home by the time the disease declares itself.

A Pertinent Question.

In keeping on the lookout for small-pox by far the most useful practice is to carry continually the question in one's mind, "Can this case be small-pox?" This is a question which can be usefully applied as a touchstone to every case in practice the diagnosis of which is not clear. Overlooking small-pox is mainly due to the possibilities of small-pox never having crossed the mind. It is a disease of extraordinarily deceptive qualities. Take its stages from the beginning. Onset simulating rheumatism, lumbago, influenza, to mention only a few. Prodromal rash simulating measles, scarlet fever, urticaria, for instance. Hæmorrhagic small-pox simulating meningitis, ulcerative endocarditis, septicæmia, among others. Severe confluent small-pox resembling measles, perhaps, or showing little sign of illness at all, because there are no spots, but only one spot; the skin of the face slowly rising (till early death) in one vesicle. Then there is the rash proper of a moderate case with a host of disguises: chicken-pox, syphilis, dermatitis, pustular eczema, scabies, impetigo, acne, and many more. These are not fancied, but are very close resemblances, as the rash passes through its various stages of papule, vesicle, pustule, ulcer, scab. Then there is the last stage of all, when scabs under the hard skin of the feet and the reddish scars elsewhere may be the only, but yet unmistakable, mark of small-pox.

Value of a Second Opinion.

Directly suspicion is aroused it is well at once to certify and get removal, or to get a second opinion. I recall very well a case where an action was brought for damages caused by an error in diagnosis. As soon as the jury were shown that the medical attendant had used all his skill and care and had also called a second opinion, they stopped the case and found for the defendant. Had this not been done, he would probably have had to pay heavy damages.

Diagnosis.

As to clinical details of diagnosis, reference is suggested to the various sources mentioned below. As I was a pupil of the late Dr. T. F. Ricketts and have worked by his methods for 22 years I naturally prefer them. They are set out in his "Diagnosis," with Dr. J. B. Byles's superb photographs; in my "Diagnosis," "Illustrative Cases," and "Differential Diagnosis between Small-pox and Chicken-pox."

For one faced with a suspected case it is best to take first the pathological features, especially the rash of the case, the history last, and to weigh all the evidence as a whole. The surest single guide is the distribution or arrangement of the rash on the skin. The key to that is that the rash of small-pox especially favours skin which is vascularised by irritation or exposure. May I also add this? Withhold an opinion in a doubiful light. Get the very best light possible. See the whole of the skin and as much as possible in one view. The sitting-up posture in bed, the patient stripped to the waist and his arms crossed in front, is very useful.

The quickest and soundest method of learning the rudiments of diagnosis, apart from seeing actual cases, is to spend an hour with a stereoscope and some good stereoscopic photographs, with a small-pox date card and some explanation.

Facts for Antivaccinators.

With antivaccinators I have usually found most good can be done by setting out the facts when temperately asked for and by avoiding argument. I say that I am as much entitled to my opinion as they to theirs. When small-pox threatens it is worth while asking the question, What are you going to do about it? Are you going to gamble on the risk of taking small-pox, or make a certainty, at considerable present inconvenience, of safety? I found this kind of reasoning effective during the war with convinced anti-vaccinators, and learnt from many of them with whom I served that much opposition to vaccination comes from the facts never having been put to them. Further information on this point is in my "Lecture to Soldiers on Small-pox and Vaccination."

It is worth noting that successful vaccination within the first 48 hours of the incubation period of small-pox prevents an attack; vaccination can be performed later, but then it has little or no protective effect.

Books.

The Diagnosis of Small-pox, Ricketts and Byles, Cassell and Co., 21*s*.
Article, Small-pox, by John MacCombie, M.D., in System of Medicine, vol. ii., part 1, Infectious Diseases.
Article, Small-pox, by E. W. Hope, M.D., D.Sc., Medical Officer of Health, Liverpool, Encyclopædia Medica, 1902.
Chapter, Small-pox, in Manual of Infectious Diseases, by Goodall and Washbourn, 1908.
Chapter iv., Small-pox, in Acute Contagious Diseases, Welch and Schamberg, 1905, price 25*s*.
Article, Small-pox, by John William Moore, M.D., M.Ch., F.R.C.P.I., Dublin, in Twentieth Century Practice of Medicine, vol. xiii., 1898.
Article, Small-pox, by William T. Councilman, M.D., in System of Medicine, Osler and Macrae, vol. ii., Infectious Diseases, 1907.
The Vaccination Question, C. Killick Millard, M.D., 1914.
Article, Variole, by B. Auche, in Fièvres Éruptives, Paris, 1905.
Wanklyn: How to Diagnose Small-pox, 1912, John Murray, Albemarle-street, London, 3*s*. 6*d*. The Administrative Control of Small-pox, 1913, Longmans, Green, and Co., Paternoster-row, E.C., 3*s*. 6*d*. The Differential Diagnosis between Chicken-pox and Small-pox, Jenner Memorial Number of the British Medical Journal, 1912. Cases illustrating Points in Small-pox Diagnosis, 1914, 6*d*. Lecture to Soldiers on Small-pox, 1915, 1*s*. A Short History of Vaccination, 1911. A Small-pox Date Card, 1919, showing the main dates associated with a case. The Medical Officer Weekly Journal, 36, Whitefriars-street, E.C

VACCINATION BY SUBCUTANEOUS INJECTION.

BY J. R. GOODALL, O.B.E., B.A., M.D., C.M., D.SC. (MCGILL UNIV.), F.A.S.G.,

MAJOR, C.A.M.C.; ASSISTANT PROFESSOR OF GYNECOLOGY, MCGILL UNIVERSITY, MONTREAL.

IN the spring of 1915, while attached to the Canadian Mounted Rifles as medical officer, I came frequently in contact with Dr. George Hume, of Sherbrooke. We discussed the question of vaccination of troops by subcutaneous injection. He had done a few cases in this way, and before inflicting this method upon the men of my unit I had myself vaccinated by Dr. Hume. I had been vaccinated ten times previously without success. Within three days my arm was sore, and I went through all the general symptoms of successful vaccination.

Since then I have vaccinated hypodermically approximately 6000 men and quite a number of officers' children.

Method of Preparing Vaccine.

It was impossible to procure vaccine in bulk, so vaccine put up in the small capillary glass tubes was used in the majority of cases.

These vaccine tubes were first placed in methylated spirit for a few minutes, then withdrawn singly by surgically clean or gloved hands, the excess alcohol wiped off with sterile absorbent cotton, the ends broken off, and, lastly, the sterile rubber bulb fixed to one end of tube to blow out the vaccine into a sterile beaker. The vaccine generally shoots out of the tube into the beaker in the form of a small cylinder.

When the vaccine available was in small wax tubes the extreme end was first punctured with a sterile needle and the vaccine squeezed out by compressing the container. From

one-half to three-quarters of a tube of vaccine was used per individual. Sufficient sterile water was then added to the vaccine to make each injection equal to 1 c.cm.

In private practice, or where one or two only are to be vaccinated, the vaccine may be prepared as an ordinary hypodermic injection, using vaccine instead of a drug.

Patients can be vaccinated with great rapidity. After preparation of the vaccine four medical officers vaccinated 1100 in two and a half hours by using 20-c.cm. Record syringes and injecting 1 c.cm. into 20 consecutive men, changing the needle after each injection.

Technique of Injection.

The arm was sterilised with iodine and the vaccine injected diagonally with a fine hypodermic needle and syringe into the subcutaneous tissues. In a few cases by mistake the vaccine was injected intracutaneously.

Everything should be done with surgical cleanliness.

After-effects.

The local reaction sets in usually between two and four days, but in a few cases the reaction is considerably delayed, and in one colonel's family three children were vaccinated, and reaction did not appear until 12, 13, and 15 days respectively. The local reaction is much like that following antityphoid inoculation and just as variable in intensity. About 8 per cent. proved ineffective, showing but slight local reaction, not more than perhaps could have been accounted for by the iodine applied to the skin; in 70 per cent. (approximate only) there was a reaction similar to the usual reaction after antityphoid inoculation—i.e., local swelling, heat, tenderness, slight pain, and redness. In a small percentage of cases the reaction was marked, causing swelling and œdema of the elbow, and in a few œdema involving the whole arm and hand.

In every one of the 6000 cases vaccinated hypodermically by myself or under my supervision (for all of whom I myself prepared the vaccine for injection) the local condition subsided without any signs other than those of excessive local reaction.

After the seventh or tenth day the local swelling and induration subside, leaving a hard nodule in the subcutaneous tissues, usually ill-defined at first, becoming later well circumscribed and lasting for about one month. This is quite painless after the first acute reaction. The process differs in no respect from that of an antityphoid reaction, except that the onset is slower and the reaction spreads itself over several days.

The general symptoms vary in intensity and do not differ from those of ordinary vaccination.

Infection.

In the 6000 cases quoted there was not one case of infection. This can be stated without question of doubt. The men were all soldiers who came directly under me and my medical officers for observation and for sick parade. They were all seen several times afterwards, and in about 50 per cent. of cases the vaccination was done at the same time or between the regular antityphoid inoculations. I saw one case of infection in another brigade; this was brought to my attention, and on close questioning it was found that there had been faulty technique. There was a punched-out ulcer, about the size of a halfpenny, exposing the fascia. The ulcer healed without untoward result.

None of the 6000 required dressings, and the men were not exempted from anything but physical training and rifle drill. A percentage were given light duty, and a very small percentage were excused duty for a few days, owing to excessive local or general reaction. There were no hospital admissions. In a few cases (about 10 altogether) the vaccine was injected intradermically, and about four or five days later there developed the typical vesicular and pustular stages of ordinary vaccination, quite uncomplicated.

Advantages of the Method.

1. This is a clean surgical operation. If untoward results develop they are due to faulty technique. 2. There is no open wound, and therefore dressings are not required. 3. Dangers of secondary infection are practically eliminated. 4. The percentage of positive reactions is very high. 5. In only a small percentage of cases the local and general symptoms caused complete incapacity. 6. It is painless as compared with scarification. 7. Children undergo the hypodermic vaccination without any difficulty, owing to the rapidity with which the injection is carried out.

Reviews and Notices of Books.

William Howard Lister. By WALTER SETON. With a Foreword by Lieutenant-General Sir IVOR MAXSE, K.C.B., C.V.O., D.S.O. Printed for private circulation by Philip Lee Warner, Publisher to the Medici Society, Ltd., Grafton-street, London, W. 1919.

THE Life of William Howard Lister, Captain, R.A.M.C., by Walter W. Seton, LL.D., will interest a wider circle than that of the University College men for whom it is primarily intended. Senators of the University of London might read it with advantage, and the general public will find the incidents of this short life to be of thrilling interest. Though of Quaker stock, and educated at a Quaker school, he was eminently a fighter; not, however, for fighting's sake, but as a champion of good causes. Three or four such contests are a good record for one who had only reached the age of 31. He entered heart and soul, from the student's point of view, into the vain struggle to make the University into a real University of London; and in an unobtrusive way he was the instigator and leader of some of the more active movements of the London students of his day. Amongst these was the incident of the "Brown Dog" at Battersea, which is graphically described. The reader will see that it was not, as some thought, a mere piece of rowdyism, but a fight for a principle which was backed up by newspaper articles and debating society discussion. It was an easier task to cultivate the spirit of comradeship amongst his fellow students than to start such a spirit amongst the students of the University. His untiring efforts in this direction had much to do with the successful origin of University College Hall.

But the real spirit which inspired him is most clearly, though all too briefly, shown in the account of his service during the war. He was one of the first dozen qualified men to obtain a commission in the R.A.M.C. and was in time to take part in the battles of the Marne and of the Aisne, and, except for sick leave, he was continuously with the Army till he was killed on the Italian front in August, 1918. He was not one of those who do not know what bodily fear is, and the excitement of battle had no attraction for him. He was always anxious lest his courage should fail, but when the time came nothing could keep him from the place of danger. In a letter to a personal friend, dated B.E.F., France, March, 1918, he said:

"We are all of us a little grave and anxious out here, waiting in this quiet before the storm, not about the ultimate result, of course, for of that there can be no doubt. But there's going to be deadly work this year, and with so many splendid fellows round one, one wonders more than ever at the wickedness and beastliness of it all. The people I am with now are the most charming I have yet met, and I only pray I may be able to do my full duty by them."

His power of organising was great, and everywhere he inspired enthusiasm. Sir Ivor Maxse, in a foreword, says:—

"In fact, his eager temperament and immovable standard of duty made him indispensable to the troops whenever fighting was on, and we all recognised his value from the last recruit to the divisional commander."

Dr. Seton tells the story very simply, clearly, brightly, and without redundancy. There is not a dull page in the book. He is fortunate in having almost equally acceptable writers in the two friends who have supplied the longest quotations. It is a good testimonial for the author that one closes the book with regret and wishes that it had been longer. It is beautifully produced, and those who desire copies can obtain them from the senior clerk, University College, London, Gower-street, W.C.

Practical Vaccine Treatment for the General Practitioner. By R. W. ALLEN, M.A., M.D., B.S., late Captain, N.Z.M.C. London: H. K. Lewis and Co. 1919. Pp. 308 + ix. 7*s.* 6*d.* net.

THIS little volume contains a fund of useful information on the subject with which it deals. After an autobiographical introduction, in which the author claims that never in the past 12 years has he misled his readers on the subject of vaccine treatment, he passes on to explain the rationale of vaccine therapy in its varied forms. He is impatient of those who cannot distinguish between vaccine

and serum. He holds—and we think rightly—that every case undergoing vaccine treatment is "a law unto itself," and therefore it is illogical to lay down beforehand any hard-and-fast scheme of dosage. The inference is that the clinical pathologist should give his own vaccines; but whereas it may conceivably be true, as Dr. Allen contends, that no dermatologist is a sound bacteriologist, it does not necessarily follow that every clinical pathologist is a sound physician.

The author's ruling principle in the administration of vaccine is to give the smallest dose which suits the patient, and he gives some sound advice on technique—e.g., "Use good tools and get it over and done with as quickly as possible." To this axiom we should add the rider: "See that in your haste you have not injected vaccine into a vein unless you wish to do so." He deprecates the employment of detoxicated vaccines as being unsound in principle. He is aware of the bearing on success of the barriers to the action of vaccine occasioned by want of access, as from fibrin in pneumonia and scar-tissue in wounds, and he illuminates this pitfall for the unwary. A novel and useful feature for the inquiring mind is the appendix of questions and answers as regards vaccines.

We find the author's experience entertaining, but we should like to know more of his failures in order that others may learn to share his successes. He is not always consistent. On one page we read that the staphylococcus forms endotoxin and endotoxin alone, and on the same page, a few lines further down, we are told that the staphylococcus forms one endotoxin and two exotoxins. Whereas it is twice stated that the author has never lost a case of septicæmia, we read that in relation to infective endocarditis of a streptococcal nature (and is not this septicæmia?) a few *successes* (the italics are ours) are on record!

The author has many lances to tilt, mostly "agin the Government," and has apparently been "laughed to scorn" quite a number of times. Referring to pensioners or other discharged soldiers who may be dysentery carriers he writes: "..... what steps the Army or Government will take once they have been discharged, Heaven only knows," a surmise which may be true, but does not presage well for a judicial survey of a difficult subject.

If he does not surrender his own judgment, the practitioner will find Dr. Allen's book useful to him.

The Newer Knowledge of Nutrition: the Use of Food for the Preservation of Vitality and Health. By E. V. MCCOLLUM, School of Hygiene and Public Health, the Johns Hopkins University. Illustrated. New York: The Macmillan Company. 1919. Pp. 200. 6*s.* 6*d.*

REGARDLESS of the outcome of future studies relating to the importance of diet in the ætiology of such diseases as pellagra, tuberculosis, and allied disorders, the author essays to give a non-technical presentation of the kinds of combinations of our natural foods which induce good or faulty nutrition in animals. This should be of service in showing the inadequacy of the practice, which is still in vogue, of regarding calories as the only factor of importance in the planning of the diet. It is neither necessary nor desirable to abandon the customary classification of foodstuffs. The author's great point is that a chemical analysis of a foodstuff may throw no light whatever upon certain aspects of its dietary properties, and that only by biological methods can we arrive at principles which can serve as a safe guide to the planning of a safe dietary.

The biological method for the analysis of a foodstuff is first dealt with. Over 3000 feeding experiments, most on domestic rats, and some on farm pigs, cattle, chickens, and guinea-pigs, were made, and in the result it is found that "the chemical requirements of these different types of animals are essentially the same." It was only in 1897 that the first fertile suggestion was made by Eijkmann as to the dietary fault causing beri-beri. The various feeding experiments by other observers with purified proteins, amino acids, &c., are explained, as well as how it comes about that under certain conditions neither maintenance of body weight nor growth could be secured with such diets, and why the addition of certain unidentified food substances restored the balance. The relation of a diet of polished rice to experimental beri-beri and the "vitamine" hypothesis of Funk led up to the discovery of two classes of unidentified substances as necessary constituents of a normal diet to which the terms fat-soluble A and water-soluble B were given. We need hardly refer readers of THE LANCET to the large literature on these points. A most interesting chapter is devoted to experimental scurvy and the dietary properties of vegetables. Guinea-pigs restricted to a diet of oats develop scurvy in a few weeks. All the "seeds"—wheat, oats, rye, barley, &c.—examined resemble each other very closely in their dietary properties, and all have important dietary faults, so that it is not possible to secure appreciable growth in young animals fed exclusively upon seed products as the sole source of nutriment. There seems to be no species of the omnivora which subsists entirely upon seeds. Appropriate mixtures of leaf and seed make fairly satisfactory food mixtures, and the author gives his reasons why the leaf should show such decided dietary differences as contrasted with the seed. The tubers and roots employed and their characteristics, more especially as regards the solubles A and B, are passed in review. The short chapter on the Vegetarian Diet is most suggestive, and so is the next on Foods of Animal Origin. Milk is our most important foodstuff, for in addition to the extraordinary value of its protein, when used in combination with the foodstuffs of either animal or vegetable origin, it corrects their dietary deficiencies. Milk and leafy vegetables and eggs are regarded as *protective* foods. The author is loud in his praises of milk; indeed, according to him mankind can be classified into two groups. Both groups have derived the greater part of their food-supply from seeds, tubers, roots, and meats, but differ in the character of the remainder of their diet. Those peoples—Europeans and North Americans—who have made liberal use of milk as a food, in contrast with those peoples—Chinese, Japanese, and people of the tropics generally—who have made use of the leaf as their sole protective food, in the words of the author—

"have attained greater size, greater longevity, and have been much more successful in rearing their young. They have been more aggressive than the non-milk using peoples, and have achieved greater advancement in literature, science, and art. They have developed in a higher degree educational and political systems which offer the greatest opportunity for the individual to develop his powers. Such development has a physiological basis, and there seems every reason to believe that it is fundamentally related to nutrition."

In the United States 15–25 per cent. of the total food-supply is from the products of the dairy. Milk is the greatest factor of safety of our nutrition. Its value cannot be estimated on the basis of its content of protein and energy. It has a value as a protective food, improving the quality of the diet, which can be estimated only in terms of health and efficiency. The last chapter deals with the nursing mother as a factor of safety in the nutrition of the suckling.

This is a record of laborious and painstaking work on an important and urgent subject, illuminated by penetrating criticism and suggestive practical applications. It largely modernises and fructifies our ideas of the importance of food and feeding, while demonstrating how little we know as yet of the intimate factors of nutrition. Altogether a wonderfully suggestive contribution to the elucidation of some of the obscure phenomena of the physiology of metabolism in its widest sense.

Health Resorts of the British Isles. Edited by NEVILLE WOOD, M.D. Second edition. London: University of London Press, Ltd. 1919. Pp. 254. 6*s.*

THE present is an auspicious time for the publication of a second edition of this book. For one reason or another many patients will be prevented for many years to come from visiting the famous centres of hydrology on the continent. At the same time, owing to the efforts of a few English physicians, the importance of hydrology is at length being realised in this country, and there are prospects of a scientific development of our own not inconsiderable resources. As Dr. Wood points out, there are important mineral springs scattered throughout the Empire, and it is unfortunate that the medical men coming from our own overseas dominions should have to seek on the continent that post-graduate instruction in hydrology which we are at present unable to provide.

The lesser as well as the better known British watering-places are all noticed in this book, and their virtues, whether for baths, climate, or sunshine, are duly recorded.

There are numerous illustrations, many of which are already well known to those who travel. More important, perhaps, are the analytical tables which are given from time to time, and of which there might be even more with advantage to the medical reader. Some districts are necessarily better reported than others. The accounts furnished by medical committees and societies are obviously the best, and an increasing interest on the part of medical men in their own districts will doubtless lead to a continued improvement of this useful volume.

JOURNALS.

IN the *Military Surgeon* for June Colonel H. L. Gilchrist describes the "mobile degassing station" devised by himself as Medical Director of the Chemical Warfare Service of the American Expeditionary Force. They were required to deal with damage to the mucous membranes by acid and chlorine and with damage to the skin by mustard gas. They had a blue flag by day, a blue lantern by night. When the men arrived any who showed gas symptoms were at once treated and sent on to hospital, the others were divided into groups of 24 for bathing and re-clothing. These last, after laying down arms and loose equipment, neutralised their hands and shoes with dry lime, and their helmets with lime water, the helmets being hung on numbered shelves. The men then undressed, stepped under the showers, sprayed themselves with liquid soap, the hot showers were turned on for 15 seconds, 45 seconds were allowed for washing, and the showers were then turned on again for 30 seconds to remove the soap. Each man had a clean towel. Eyes, noses, and throats were then sprayed with 5 per cent. solution of sodium bicarbonate, the men were inspected naked by medical officers, were served out with fresh uniform and underclothes, and returned to their units. The degassing unit was essentially a motor truck carrying a 1200-gallon tank, a rotary pump, and a device for heating the water; a portable shower apparatus with 24 shower-heads like a pergola made of 2-inch tubing with sliding joints and standing 7 ft. 6 in. above ground; a hospital ward tent used as a bathing and dressing tent; and wagons to carry the stores and clothing. The baths could thus be taken to the troops, the showers could be erected in two minutes, the whole outfit in 17 minutes, and packed up again in nine. 160 outfits were ordered by the Army.

In the same issue Brigadier-General F. Winter, Medical Corps, U.S. Army, recounts the trials and triumphs of the Medical Corps, starting from crowded St. Nazaire, where surgical specialists helped the needed hospital outfit from the ships to the cars, through the difficulties of sanitation in France when deficiency of tonnage kept appliances short, and the early discomfort of hospitals when cargoes of linoleum were sunk by submarines, and Carrel-Dakin solution froze in the wards, and lice had not yet been mastered. It was enthusiasm for General Pershing and his leadership, General Winter thinks, that inspired all ranks to make the war machine work to best advantage; everyone helped, doctors, nurses, and orderlies. He claims great results for preventive medicine: 45,000 deaths from wounds, 22,000 from disease, including pneumonia, which, by the way, attacked least of all the 1st Army Corps in bivouac. He believes it was loyalty to their families that kept the U.S. soldiers off alcohol, and here they were greatly assisted by the Y.M.C.A. He pays a generous tribute to the work of the Red Cross, which was not only always friendly and open-handed with stores, but, looking ahead, published for the young army a book of the splints they might best use, and set up a factory in France to make them. He proudly quotes from Sir Arthur Stanley that the people of the United States raised more than five times as much for the Red Cross as was raised in England, but we must remember that the United States have had nothing like our war taxation. All American officers, speaking in the United States, give most cordial thanks to the French and ourselves for our sympathetic coöperation.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

METEOROLOGICAL OFFICE: ADVISORY COMMITTEE ON ATMOSPHERIC POLLUTION: SUMMARY OF REPORTS FOR THE MONTHS ENDING

August 31st, 1918.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre. Insoluble matter. Tar.	Insoluble matter. Carbonaceous other than tar	Insoluble matter. Ash.	Soluble matter. Loss on ignition.	Soluble matter. Ash.	Total solids.	Included in soluble matter. Sulphate as (SO_3).	Included in soluble matter. Chlorine (Cl).	Included in soluble matter. Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office	37	0·10	0·99	1·93	1·18	0·59	4·79	0·74	0·31	0·04
Embankment Gardens	32	0·07	1·53	2·52	1·48	2·62	8·21	1·21	0·35	0·07
Finsbury Park ...	36	0·04	1·16	5·72	1 04	2·81	10·77	1·18	0·24	0·06
Ravenscourt Park	22	0·02	0·27	0 76	0·93	2·34	4·32	0·94	0·20	0·10
Southwark Park	32	0·06	0·97	2·21	2·09	3·22	8 54	1·29	0·46	0·11
Victoria Park ...	12	0·02	1·03	5·32	0·64	1·27	8·27	0·3•	0·10	0·03
Wandsworth Com.	50	0·01	0·01	0·10	1·49	3·27	4·88	1·23	0·42	0·01
Golden Lane ...	41	0·05	1·98	3·02	0·66	3·63	9·34	1·44	0·45	0·15
Malvern*	—	—	—	—	—	—	—	—	—	—
Manchester—										
Whitworth Street (garden)	63	—	—	—	—	—	12·20	—	—	—
,, (roof of College)	64	—	—	—	—	—	12·00	—	—	—
Newcastle-on-Tyne	31	0·16	3·16	7·80	1·43	3·24	15·77	1·50	0·30	0·07
Rochdale	—	—	—	—	—	—	32·88	—	—	—
St. Helens	79	0·17	1·28	3·37	2·77	6·42	14·01	2·01	1·43	0·12
Southport—										
Hesketh Park ...	67	0·02	0·30	0·33	1·00	4·36	6·01	1·19	0·21	0·07
Woodvale Moss ..	62	—	—	—	—	—	5 51	—	—	—
SCOTLAND.										
Coatbridge	85	0·28	6·24	9·44	3·86	6·15	25·97	3·00	0·31	0·25
Glasgow—										
Alexandra Park...	73	0·13	1·23	3·82	0·96	3·48	9·62	2·05	0·32	0·16
Bellahouston Park	81	0·08	1·02	3·03	2·67	3·77	10·57	1 88	0·32	0·08
Blythswood-sq. ...	68	0·13	2·14	4·24	1·56	3·25	11·32	2·08	0·31	0·18
Botanic Gardens	71	0·09	2·14	4·08	2·35	4·80	13·46	1·98	0·31	0·08
Richmond Park...	85	0·10	1·61	5·16	4 36	5·72	16·95	2·87	0·44	0·14
Ruchill Park ...	79	0·10	1·55	3·93	3·40	3·57	12·55	2·30	0·26	0 06
South Side Park.	70	0·06	1·56	2·93	2·75	4·38	11 70	1·81	0 44	0·08
Tollcross Park ...	80	0·11	2·20	5·79	1·28	4·78	14·60	2·41	0·28	0·08
Victoria Park ...	100	0·12	1·97	3 79	2·71	3 80	12·39	2·16	0 62	0 18

Sept. 30th, 1918.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre. Insoluble matter. Tar.	Insoluble matter. Carbonaceous other than tar	Insoluble matter. Ash.	Soluble matter. Loss on ignition.	Soluble matter. Ash.	Total solids.	Included in soluble matter. Sulphate as (SO_3).	Included in soluble matter. Chlorine (Cl).	Included in soluble matter. Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office[1]	—	—	—	—	—	—	—	—	—	—
Embankment Gardens	60	0·16	1·76	2·21	3·89	12·18	20·20	4·85	1·31	0·11
Finsbury Park*...	—	—	—	—	—	—	—	—	—	—
Ravenscourt Park	121	0·03	1·53	5·67	2·42	2·39	12·04	1·35	0·46	0 21
Southwark Park...	59	Tr.	4·34	11·21	3·72	4·46	23·73	3·11	0·59	0·37
Victoria Park ...	40	0·00	1·38	3·27	0·71	1·57	6·95	1·50	0·21	0·06
Wandsworth Com.	18	0·05	0·87	4·66	0·58	1·26	7·42	0·44	0·12	0·04
Golden Lane ...	130	0·04	1·80	2·73	1·56	6·24	12·37	2 95	0·97	0·39
Malvern*...	—	—	—	—	—	—	—	—	—	—
Manchester—										
Whitworth Street (garden)	249	—	—	—	—	—	24·90	—	—	—
,, (roof of College)	227	—	—	—	—	—	26·10	—	—	—
Newcastle-on-Tyne	112	0·10	2·86	4·33	2·23	4·46	13·99	2·45	0·91	0·28
Rochdale	—	—	—	—	—	—	32·88	—	—	—
St. Helens	201	0·43	3·18	6·92	4·02	6·54	21·09	4·43	2·98	0·07
Southport—										
Hesketh Park ...	223	0 04	0·67	0·48	4·99	5 61	11·80	2·96	2·45	0·20
Woodvale Moss ..	187	—	—	—	—	—	9·35	—	—	—
SCOTLAND.										
Coatbridge	130	0·14	1·94	6·44	4·16	7·30	19·98	2 96	0·65	0·26
Glasgow—										
Alexandra Park...	121	0·06	1·29	2·53	2·13	4·66	10·67	2·44	0·34	0·23
Bellahouston Park*	—	—	—	—	—	—	—	—	—	—
Blythswood-sq. ...	154	0·04	1·33	1·62	2·38	6·33	11·70	3·38	0·37	0·34
Botanic Gardens	170	0·06	1·65	2·19	3·22	8·65	15·77	3·56	0·34	0·17
Richmond Park*	—	—	—	—	—	—	—	—	—	—
Ruchill Park ...	140	0 02	1·14	2·03	2·38	6·47	12·04	3·21	0·25	0·14
South Side Park..	167	0·01	0·75	1·60	1·47	7·03	10·86	2·51	0·33	0·18
Tollcross Park* ...	—	—	—	—	—	—	—	—	—	—
Victoria Park* ...	—	—	—	—	—	—	—	—	—	—

* No returns. [1] Excessive rainfall, bottle overflowed. Tr. = trace.

"Tar" includes all matter insoluble in water but soluble in CS_2. "Carbonaceous" includes all combustible matter insoluble in water and in CS_2. "Insoluble ash" includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 9 lb. per acre; (*b*) 2·56 English tons per sq. mile; (*c*) 1 g. per sq. metre; (*d*) 1/1000 mm. of rainfall.

The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables. The analyses of the rain and deposit caught in the gauge at the Meteorological Office are made in THE LANCET Laboratory.

THE LANCET.

LONDON: SATURDAY, AUGUST 16, 1919.

The Reorganisation of Pensions.

THE speech of Sir LAMING WORTHINGTON EVANS, the Minister of Pensions, in asking the House of Commons, sitting as Committee of Supply,[1] to agree to the supplementary vote of £45,855,000 for the Ministry of Pensions, has helped the nation to realise the responsibility imposed by the care of its injured sailors and soldiers. A nation yet unborn will gather the aftermath of the world-war and see the last maimed pensioner carried to the grave from which the surgery of this generation saved him. It is with the sailor or soldier disabled by his service that our profession is chiefly concerned; it is here our assistance is indispensable to the carrying out of the work of the Ministry. The granting of pensions to the widows and dependents of the dead is another branch of pensions work, for which medical advice is essential, being invoked chiefly when there is doubt whether death by disease should be attributed to war service. The figures relating to pensions are instructive, and may do something towards explaining the occurrence of delays and mistakes in a department newly organised in the midst of war, of whose duties the granting of pensions to the injured and to dependents forms only one part. Pensions, gratuities, and final allowances during the past 12 months have been considered in respect of more than two and a quarter million persons, including officers, nurses, and men, with their widows, their children, and their other dependents. The annual payment at present comes to near £100,000,000, though this sum is subject to reduction in the future, not only by the deaths of pensioners, but by the cessation of gratuities that will not have to be repeated. Moreover, no pensioner, wounded or invalided at any date in the war, will leave the protection of the Pensions Ministry save under proper medical certification that he is fit to undertake the training proposed for him by the Ministry of Labour.

The part to be played by medical men in future pension administration was considerably insisted upon by the Minister of Pensions, who described the procedure in detail. The medical boards for men applying for pensions, or for the renewal of them, passed on April 1st out of the hands of the Ministry of National Service into those of the Ministry of Pensions, which department took over on August 4th from the War Office responsibility for the Re-survey Boarding of Officers. This is a task which demobilisation has rendered very heavy, and during the six months ending with last June medical boards were held upon 229,697 men. At the same time, and owing to the process of demobilisation, there has come under the jurisdiction of the Ministry the care of the disabled, including their treatment in hospitals, clinics, and convalescent centres. Colonel WEBB will be the chief medical officer, under whom a medical, surgical, and nursing staff will carry out the duties assigned to them by the Ministry, among which will be the provision of artificial limbs and their repair. These increases in the sphere of the activities of the Ministry of Pensions will, however, be of less interest to the public than the steps which are promised for reorganisation of the work of the department. There has been public expression of dissatisfaction, which may have been exaggerated but has not been altogether baseless, and the existence of which cannot be denied. A system by which medical officers at the headquarters of the Ministry were empowered to review the decision of a medical board, and by which a medical officer was authorised to alter the amount of a man's assessment, though made by a board, without himself re-examining the case, was one which, in popular phraseology, "asked for trouble." There are now to be Medical Appeal Boards to which the medical assessor of the Ministry may refer a case, if not satisfied, on the perusal of the papers in it, that substantial justice has been done to the pensioner or to the taxpayer. For the taxpayer must be protected. To these boards the pensioner himself will have a right to appeal, if not satisfied with the amount awarded him, and such re-examination should do much to justify the finality assigned to the decision which will then follow. In a question of incapacity the body of the man concerned supplies an essential part of the material required for the consideration of his case, and a summary or statement of the observations and conclusions of others, whether medical men or not, cannot satisfactorily be substituted for it.

In addition to the Medical Appeal Boards there will be, we understand, other new tribunals set up as the result of the report of the Select Committee recently published, and these will be independent of the Ministry of Pensions, and appointed by the Lord Chancellor when a Bill for that purpose has been duly passed. Their functions will be to consider appeals by a claimant of a pension in cases of its refusal either on the ground that the disability was not attributable to, or not aggravated by, military service, or on the ground that the disability was due to serious negligence or misconduct of the claimant. They will also review refusals of pension to a widow or dependents on the ground that the sailor or soldier's death has not been due to military service. These tribunals will be composed of a barrister or solicitor as chairman, a medical practitioner, and a disabled officer or disabled man, according to whether the case to be considered is that of an officer or of one not holding a commission. Thus a statutory right will be granted, as distinct from one arising out of a Royal Warrant, to claim a pension before an independent statutory court, whose decision will be final. This court will have to decide, we may add, one of the most difficult of the many complex questions that arise in the granting of war pensions. A man may have entered the Army an apparently healthy man, or with an admitted unsoundness. He may have faced the rigours of one or more winters in the trenches and returned to develop disease, ending in death or disability, in the healthy surroundings of his home or of a well-ordered camp in the United Kingdom. Naturally, to him or to his surviving relatives it is clear beyond demonstration that his war service is the responsible cause of a result which otherwise would never have supervened, and yet it may not be so. We urge in such a case a liberal consideration of the facts, medical and otherwise, with the benefit for the claimant of such doubt as science may not be able to clear up. We are not, however, altogether in accord with the observations

[1] THE LANCET, August 9th, p. 267.

of Dr. D. MURRAY in the House of Commons when he said that this question of the attribution of disease to war service should not be put to a medical board at all. We agree with him that it is a cruel duty, and one the perfect fulfilment of which is wellnigh impossible. We regard the matter, however, as one essentially for medical decision, and we are inclined to ask ourselves whether an appeal tribunal with a majority of laymen upon it can really do more than relieve a medical board of a painful responsibility. Whether it supports or overrules a medical board's decision, it can hardly add weight to it. It is our fervent hope that the changes introduced by the present Minister of Pensions may result in his department combining justice with generosity, and giving that degree of public satisfaction which is essential to the smooth working of the affairs of the State. It has to create its own standards and to live up to them. The standards of pension administration created by previous wars are not merely obsolete; they were never altogether worthy of the occasions which called them into being.

Ernst Haeckel.

THE death is announced at the age of 85 of Professor ERNST HAECKEL, who attained world-wide reputation as a biologist, a zoologist, and an apostle of Darwinism in Germany; later he secured notoriety as an expounder of a theory of the universe by which he settled, according to his own satisfaction, such problems as the existence of GOD, the freedom of the will, and the immortality of the soul. In addition to these labours he travelled widely in the East, and during the war was an embittered opponent of Great Britain and an ardent upholder of the German cause. He was a skilled artist both with the brush and the lead, and his books of travel were illustrated with his own hand, while many of his biological and zoological works were also embellished by him with magnificent drawings, both coloured and uncoloured. HAECKEL'S chief claim to fame is that when quite a young man at the very beginning of his scientific career, apart from medicine, he read and at once accepted DARWIN'S thesis as laid down in "The Origin of Species." He was the first German biologist to do so, and he maintained his position in opposition to many of the foremost thinkers in Germany, among whom the most prominent was VIRCHOW. Before very long, as every one knows, DARWIN'S doctrine of evolution was accepted in scientific circles in Germany as well as elsewhere. HAECKEL'S mind, however, worked on different lines from that of DARWIN, who was eminently cautious and who worked by amassing particulars and from them formulating a general rule. HAECKEL considered that the doctrine of evolution could be applied to the solution of all problems wherein men or animals are concerned with almost the certainty of mathematical laws, and in upholding this thesis he was as bitter and dogmatic as any of the clericals against whom he so often tilted. Thus, we find him saying in "The Riddle of the Universe" (we quote from the shilling edition of 1913), on p. 12:—

"In the famous speech which Emil du Bois-Reymond delivered in 1880 in the Leibnitz session of the Berlin Academy of Sciences he distinguished seven world enigmas, which he enumerated as follows: (1) The nature of matter and force; (2) the origin of motion; (3) the origin of life; (4) the (apparently pre-ordained) orderly arrangement of nature; (5) the origin of simple sensation and consciousness; (6) rational thought and the origin of the cognate faculty, speech; (7) the question of the freedom of the will."

HAECKEL goes on to say that DU BOIS-REYMOND considered three of these problems entirely transcendental and insoluble—namely, problems 1, 2, and 5; three others, problems 3, 4, 6, capable of solution though difficult; while as to problem 7 he remained undecided. HAECKEL sweeps all doubts away as follows:—

"In my opinion the three transcendental problems (1, 2, and 5) are settled by our conception of substance; the three which he considers difficult though soluble (3, 4, and 6) are decisively answered by our modern theory of evolution; the seventh and last, the freedom of the will, is not an object for critical, scientific inquiry at all, for it is a pure dogma, based on an illusion, and has no real existence."

HAECKEL'S "law of substance" is the combination of the fundamental chemical law of the constancy of matter with the fundamental physical law of the conservation of energy, and according to him it definitely rules out the three central dogmas of metaphysics—GOD, freedom, and immortality. We can expand this doctrine in the words of Mr. JOSEPH MCCABE, who is HAECKEL'S warmest supporter in this country, by the following quotation from his "Haeckel's Critics Answered," where he says that HAECKEL concludes—

"That the thinking and willing force in man—what we call his mind or spirit—is identical with the force that reveals itself in light and heat. In other words, he is forced to think that spirit and energy are one and the same thing, and so he uses the names indiscriminately. But he is further convinced ..... that matter and spirit (or force) are not two distinct entities or natures, but two forms or two aspects of one single reality, which he calls the fundamental substance. This one entity with the two attributes—this matter-force substance—is the sole reality that exists."

Belief in GOD is not the exploded idea that HAECKEL seemed to consider it, nor can we see how belief in the two cardinal doctrines of the conservation of matter and energy necessarily rules out belief in GOD. But here HAECKEL showed the typical psychology of the Prussian. Just as the pan-German—i.e., Prussian—ideal was that the whole world should be ruled and governed by Prussian kultur, that phase of psychology being the one and only mental attitude which possessed any real good, so HAECKEL held that belief in the law of substance explained all the problems which have exercised the mind of man for centuries, whence it followed for him that anyone who did not hold with his ideas was a gross obscurantist.

We turn with relief from HAECKEL the Monist philosopher to HAECKEL the biologist. In that field he undoubtedly did excellent work; his championship of DARWIN at a time when that great observer's views were generally looked upon with disfavour is greatly to his credit, and the biological museum which he gradually formed at Jena is comparable to the immortal HUNTER'S museum in London. His "General Morphology" was highly praised by HUXLEY, while DARWIN gave similar praise to his "History of Creation." As to his views on the war, which, when they were published in October, 1914, rightly aroused indignation, we can, now that their author is dead, feel nothing but pity that one of such intellectual gifts should have associated himself with 92 other professors in glorifying the atrocities in Belgium and the German doctrine of kultur and militarism. His work as a biologist will stand as a whole, although it was undoubtedly defective in part; his philosophical and political views will be buried in oblivion.

Annotations.

"Ne quid nimis."

THE BIRTHDAY HONOURS.

ON the occasion of the celebration of His Majesty's birthday the King has conferred honours upon three members of the medical profession—namely, Lieutenant-Colonel Harry Gilbert Barling, Dr. Robert Charles Brown, and Mr. William Ireland de Courcy Wheeler. Lieutenant-Colonel Harry Gilbert Barling, who becomes a baronet, is the Vice-Chancellor of Birmingham University, where he has been Ingleby lecturer and dean of the medical faculty; he has also been examiner in surgery at the University of Cambridge. His public services during the war were of the first importance. Dr. Robert Charles Brown, who becomes a knight, is consulting medical officer of Preston Royal Infirmary and the founder of a scholarship for research at Cambridge. His work in connexion with the promotion of infant welfare has been indefatigable. Sir W. I. de Courcy Wheeler has rendered valuable scientific and organising service during the war, and is a member of the Consultative Committee of the War Office. Sir J. Y. W. MacAlister, secretary of the Royal Society of Medicine and its parent society for 32 years, is President of the Library Association, started and acted as secretary of the War Office Surgical Advisory Committee, and organised the Royal Army Medical Corps Bureau and an Emergency Surgical Aid Corps for the Admiralty, the War Office, and Metropolitan Police during the air raids. To these gentlemen, in the name of the medical profession, we heartily tender congratulations for well-deserved honours, and while doing so include the name of Mr. Laurence Richard Philipps, the founder of the Paraplegic Hospital in Wales, who becomes a baronet, and of Sir Henry Francis New, the mayor of Marylebone, and vice-president of Marylebone War Supply Hospital, whose knighthood has been thoroughly earned.

EXPERIMENTS ON OUTPUT.[1]

THE first two publications of the Industrial Fatigue Research Board are a good augury of the high standard of future issues to be expected from this recently established board. They deal with subjects of paramount importance in the present industrial unrest. Miss Ethel E. Osborne's report is based on the hourly output of 43 women in a National Ordnance factory, who were employed on a particularly heavy and rapid operation in the turning of six-inch shells. Data from two shops were obtained of the hourly output for all operators for a whole week during two shifts, day and night, of 12 hours each, before hours were readjusted so as to replace those two shifts by three shifts of eight hours each; whereupon, after the lapse of five months so as to allow of adaptation to the new conditions, a fresh series of data was collected under precisely comparable conditions, the only variable factor being the alteration in the hours of work. The resulting relatively small increase in hourly output under the short shift system depended on the large proportion of the working time which was absorbed by automatic machinery operations, the speed of which was constant and beyond the workers' control. But in the work of fixing and removing the shells, over the speed of which alone the operator has control, the time required for a fixed amount of work shows a decrease of 19·5 per cent. in favour of the shorter shift. (In the shorter shifts the average worker's hours in the factory seem to have been about 15 per cent. less than in the longer shifts.) Miss Osborne also shows that there was a drop in *possible* output of 3·43 per cent. for the long shift as compared with a drop of only 0·58 per cent. for the short shift—i.e., the machinery became more efficient and there was less idle time in the short shift. Moreover, during the last hour of each shift the 12-hour shift showed a constant, well-marked diminution in output, whereas no such uniformity exists in the case of the short shifts; on the contrary, several sets of curves exhibit no falling off. The curves of output for the short shifts give evidence of the possibility of running at full output right to the end of the shift; but the curves for the long shifts give no such evidence.

Dr. Charles S. Myers's report describes the remarkable effects of movement study, reduced hours of work, and an improved system of payment on output at the Derwent Foundry Company, Ltd., Derby. The workers were voluntarily trained in the best methods of casting, moulding, &c. Their hours were reduced from 54 to 48 per week. As soon as a worker reached 60 per cent. of "standard output" he began to receive a bonus on his piece-rate earnings, which was so contrived that the price paid per piece rose automatically with increasing output. Under this scheme the increase in hourly earnings amounted to about 200 per cent. in one instance examined. The output increased by more than 300 per cent. No evidence of increased fatigue was found, save, perhaps, in the case of two workers who had enormously increased their output and were producing far above "standard output." There was no complaint of increased monotony under the new system, and the workers were unanimous in their preference for it. The value of such a report as this needs no emphasis in the present industrial crisis.

[1] The Output of Women Workers in Relation to Hours of Work in Shell-Making. By Ethel E. Osborne, M.Sc. A Study of Improved Methods in an Iron Foundry. By Charles S. Myers, M.D., Sc.D., F.R.S. Reports No. 2 (price 6d. net) and No. 3 (price 2d. net) of the Industrial Fatigue Research Board, appointed by the Medical Research Committee and the Department of Scientific and Industrial Research. Published by H.M. Stationery Office, 1919.

MORAL IMBECILITY.

IN the case of a man named Edward Noel Craven, convicted at the Central Criminal Court of obtaining property by false pretences, it was urged at his trial that he ought to be dealt with as a moral imbecile under the Mental Deficiency Act, 1913. He was, however, convicted, as stated, and sentenced to three years' penal servitude. From this he appealed to the Court of Criminal Appeal. He was a man able to earn a living as an engineer, but had committed many offences of dishonesty, and had been in a home under the Act of 1913. At the trial of Craven a medical witness from that home expressed the opinion that he was a moral imbecile and should be treated as such, but the Lord Chief Justice in giving judgment in the Court of Criminal Appeal held that the judge at the trial did not see his way to make use of the Act, and that he (the Lord Chief Justice) saw no reason for interfering with his discretion. The Home Secretary, he said, might order the examination of the prisoner when he was in prison and his removal to a home. An observation of Mr. Justice

Shearman at an earlier stage of the appeal may be noted. It was to the effect that the Mental Deficiency Act of 1913 contemplates the existence of homes for persons committed under it, but that there is usually no such home available, and that this had been his lordship's experience when trying such cases on circuit. He added that it was very difficult for a judge at the trial of a charge to investigate satisfactorily the mental condition of the prisoner. The proper deduction would seem to be that the Mental Deficiency Act is, in respect of such matters as those referred to, in danger of becoming a dead letter—first, because sufficient homes for moral imbeciles with criminal tendencies are not provided by the State, upon which the duty of providing them should fall; and, secondly, because the State does not supply for the guidance of judges the medical expert evidence which usually must be beyond the reach of the accused.

DEATHS FROM MALARIA IN ENGLAND.

THE Ministry of Health are frequently asked to assist in ascertaining the nature of obscure cases of illness in which a fatal issue has occurred. In two recent instances the post-mortem inquiries made for this purpose by medical officers of the Ministry have shown that the fatal issue was due to malaria. The Ministry are advised that in this country a death from acute malaria would be an exceedingly rare event if all medical practitioners adopted the diagnostic rule that in every case of obscure illness in a demobilised soldier, or other person who has served overseas, a blood film taken early in the illness should be examined. The Ministry have made arrangements by which such blood specimens sent to them for the diagnosis of malaria will be examined and reported on free of charge. The method of taking the specimen is described on p. 11 of the Memorandum, "Suggestions for the Care of Malaria Patients," of which a copy has been supplied to all registered medical practitioners in England and Wales. The specimens should be addressed to the Ministry of Health, Whitehall, S.W. 1, accompanied by the patient's name and the name and address of the sender. The cover should be marked "*Malaria Specimen: Urgent.*"

Sir George Newman, Chief Medical Officer to the Ministry, takes this opportunity to add that during the present hot weather there is a possibility that, as regards cases of illness in demobilised soldiers, symptoms which appear to be due to "heatstroke" or other effects of the sun may in reality be due to malaria. Medical practitioners are reminded that in accordance with the provisions of the Public Health (Pneumonia, Malaria, Dysentery, &c.) Regulations, 1919, it is incumbent upon them to notify cases of malaria to the medical officer of health for the district.

INFLUENZAL OTITIS.

THE tendency to aural complications in influenza varies considerably in different epidemics. In the winter of 1889–90 and in the following years influenzal otitis was very frequent. In the 1918 epidemic, on the other hand, it was decidedly less common. Farner,[1] assistant at the Zurich clinique for diseases of the ear, nose, and throat, states that from the beginning of July to the end of December 1918, only 85 ear cases visited the clinique, and in another hospital at Zurich only 30 ear cases occurred among 861 influenza patients. Of the 115 cases, 71 were males and 44 females, 90 were between the ages of 16 and 35, 12 were younger, and 13 older. In 49 the otitis was of the acute catarrhal variety (in 40 unilateral, in 9 bilateral), and in 56 suppurative (in 47 unilateral and in 9 bilateral). The otitis began on the first day of the disease in 23 cases, on the second day in 7, on the third to the seventh day in 45, in the second week in 24, in the third week in 4, and in 12 the date of onset could not be determined. Hæmorrhagic vesicles on the tympanic membrane and sanguineo-purulent secretion in the tympanic cavity were seen in 31 cases. In 13 paracentesis was performed. Mastoid irritation was observed in 17 cases and mastoid abscess in 12, in 1 case on both sides. The following organisms were found in the pus: pneumococcus in 5, streptococcus pyogenes in 3, streptococcus mucosus, diplostreptococcus, pneumococcus and diplococcus in 1 each; in 1 the pus was sterile. The course of influenzal otitis, apart from the cases complicated by mastoid abscess, was rapid and favourable, and purely nervous symptoms such as neuralgia and "nervous" deafness were much less frequent and pronounced than was formerly the case.

[1] Correspondenzblatt f. Schweizer Aerzte, 1919, xlix., 356–9.

POOR-LAW MEDICAL INSTITUTIONS AND LAY SUPERINTENDENCE.

SEIZING the opportunity afforded by the rearrangement of certain Government departments, the National Association of Masters and Matrons of Poor-law Institutions is attempting to revive an old controversy by addressing to the Minister of Health and to the public generally a statement in support of the lay administration of hospitals. If this document sets forth the best case which can be made for a departure from established principles, it does not appear that the medical men aimed at have much cause for alarm. The Council of the Association claims for its members "probity of conduct, continuity of work, sympathy, consideration, and a fair holding of the scales between all the interests concerned." It does not state that these qualities are lacking among the medical men who undertake administrative work, though unless that implication is intended to be conveyed the argument has no weight. Accepting, however, the criteria proposed, we think that any unbiassed person would admit that they are most likely to be efficiently presented by professional men with higher education, more profound knowledge of human nature, and wider experience of public affairs than is characteristic of the class, however morally worthy it may be, from which masters and matrons in the Poor-law Service are drawn. Those who have seen the experiment tried know that lay superintendence means divided control and consequent friction—friction which impedes the running of the administrative machine and may bring it to a standstill. There must, in practice, be one head, and as between the qualifications of medical men and workhouse masters to manage institutions for the sick the choice is not difficult. And the question of choice is clearly raised, for in the opinion of the Council "many of our Poor-law institutions are bound to become more and more of the nature of State hospitals." Nor is the matter merely one affecting medical officers. In the Poor-law Service the term "matron" has not the same connotation as in ordinary hospital practice. It is not to be expected that trained nurses will submit to continual interference by a superior officer who is incompetent to judge their work aright and who

has not the technical knowledge which would enable her to be appealed to in case of need. No sane person, so far as we know, has suggested that military hospitals should be placed under the charge of the Army Service Corps, but the plan would have quite as much to recommend it as could be said for the proposals of the National Association of Masters and Matrons of Poor-law Institutions. The practice of appointing medical men as heads of institutions has stood the test of time, and any drawbacks which attach to it are not to be overcome by substituting for a fully qualified officer one ignorant of the most important part of the duties required.

INTERNATIONAL HEALTH AND THE LEAGUE OF RED CROSS SOCIETIES.

WITH the approval of the Ministry of Health, Dr. G. S. Buchanan proceeded at the beginning of the week to Poland to make one of a small International Committee formed at the instance of the new League of Red Cross Societies. This league has been requested by the Polish Government to aid in devising a public health organisation for that sorely tried country in face of the devastating attack of typhus which it has recently experienced, and of other epidemics which are threatened. Dr. Buchanan's collaborators are Professor Castellani (Italy), Professor Dopter (France), and Colonel Hugh Cumming (United States of America), so that each and all of the Committee will be able to advise from close personal experience on the practical ways of preventing and of combating epidemic disease. A great promise may lie behind this announcement, though more that this cannot be said until the League of Red Cross Societies has received the report of the International Committee; for obviously when a country in the special condition of Poland is concerned it may be impossible for the Committee to suggest practical measures; or it may be easy to suggest the measures that should be taken while impossible to give any assurance that public health organisation, however well defined, can live in so distressed an environment. Looking, however, on the brighter possibilities, we see in the appointment of this International Committee, with a mandate to give considered counsel to the League of Red Cross Societies, a prevision of what may be done in the future by the League of Nations, a grand part of whose programme is maintenence of world health by inter-State support. It seems to us that the League of Red Cross Societies may be a very valuable pioneer in those territories of international hygiene which the League of Nations will have to take over.

AMPUTATION STUMPS.

MANY accepted principles of surgery remain unchanged by the lessons of the war. For instance, despite all the experience of the last four years, the routine treatment of amputation stumps and the methods of prosthesis remain essentially the same in principle as they were before the war, though they have been much improved in details. No doubt during the times of stress the claims of urgent surgical procedures were so overwhelming that no leisure was left for the trial of methods of which the practical value was not yet established, such as the operations advocated some years ago by Dr. Vanghetti. Now, however, we may hope that surgeons will be able to devise new methods of treatment, and that mechanicians may be successful in constructing suitable apparatus for the improved amputation stump. Two papers which we print in this issue of THE LANCET are doubtless only an earnest of the developments to come. Major Fitzmaurice-Kelly's paper contains nothing, perhaps, startling in its novelty, but it offers what is just now much wanted—namely, a valuable contribution to the technique of the operation for forming plastic motors. In the Pavilion Hospital at Brighton there is a plentiful supply of material, probably unrivalled in the Empire, of which Major Fitzmaurice-Kelly has availed himself, so that he has been able to perform what is perhaps a greater number of kinematic operations than any other British surgeon has yet published. At the present moment most surgeons are sceptical of the practical value of Vanghetti's methods, but the next few months should see the improved plastic motors fitted with suitable artificial limbs and their value established or disproved. The paper by Major W. E. Gallie, of the Canadian Army Medical Corps, records an attempt to lengthen an amputation stump which is too short to be useful, by means of an osteoplastic operation. If sufficient muscular attachments and muscular control can be secured there seems no reason to doubt that this procedure may be of value. As in both Major Fitzmaurice-Kelly's and in Major Gallie's operations the risk of leaving the patient worse off than before is negligible, there seems no reason why these operations should not be repeated until an agreed technique is arrived at.

MARINE HYGIENE.

AT the Congress of the Royal Sanitary Institute, held at Newcastle-upon-Tyne from July 28th to August 2nd, Surgeon Rear-Admiral Sir Robert Hill, Director-General of the Medical Department of the Navy, read an excellent paper upon Marine Hygiene. After pointing out to his audience that much of the organisation of sanitation afloat was similar to that required upon land, he emphasised the fact that marine hygiene necessarily differed in one important particular from land hygiene —only a limited allowance of sleeping and working space is available in a ship. The ventilation of ships, especially fighting ships, is a difficult problem, for armoured sides, decks, and bulkheads must be kept intact as far as possible, main watertight bulkheads must not be pierced below the main deck, and ventilation outlets or inlets, on or above the upper deck, must not interfere with the working of the guns, nor be placed within the area of their blast. The technical and constructional difficulties of the naval architect are therefore many when merely ventilation is in question. Three systems are employed in the Navy: (1) the Plenum system in which fresh air is forced into the space to be ventilated, thus driving out the foul air; (2) the exhaust system in which foul air is drawn out, thus sucking in fresh air; (3) the combined system, consisting of both artificial supply and exhaust. At present the Plenum system is generally used for living spaces, but the exhaust system for spaces in which are generated great heat, disagreeable odours, water vapour, or dangerous gases. The combined system is used for medical dressing stations and operating rooms. Means are provided for preventing draughts and for distributing air and warmth evenly. Air is warmed by passing between tubes heated by steam and a temperature of from 55–60° F. is aimed at. Speaking of the water-supply on board ship, Sir Robert Hill said that it had to be most strictly guarded, distilled water only being used when the ship

is at sea; when lying in harbour or in rivers ships are supplied by water-boats from the shore, which are designed and handled so as to reduce the possibility of pollution to a minimum. All water, moreover, supplied from the shore is treated with chloride of lime in the proportion of 30 gr. to 100 gallons. For ventilation and disinfection of ships formaldehyde vapour is used and also sulphurous acid. The former disinfectant was found of great service during the influenza epidemic of 1918. As to the health of the Grand Fleet during the war it was eminently satisfactory as regards pneumonia, enteric fever, and preventable diseases generally. The only serious epidemics were the two of influenza in the spring and autumn of 1918; in the former of these the death-rate was 0·03 per cent., in the latter 2·8 per cent., owing to the prevalence of broncho-pneumonia as a complication. We commend a study of this paper to our readers, for they will there learn to estimate aright the never ceasing watch which is kept by the Naval Medical Department over the health of its charges.

HOUSING SCHEMES.

WE learn that sites have been selected for the 400,000 houses which are to be built at some time or another to provide for the needs of the population, and the Ministry of Health is urging, in its magazine *Housing*, the necessity for speeding up. It is implied that local authorities are responsible for the delay, but we can imagine that local authorities are naturally chary about entering on schemes which must involve the spending of large sums of money. Economy appears to be the watchword of the Prime Minister and the Chancellor of the Exchequer, but we doubt whether economy will be realised in Government house-building after reading an article in *Housing* headed the Production Department. From this we learn that there are three problems in the production of a house: materials, labour, and transport. To manage these there is to be a production officer who will work in liaison with officials from the Ministry of Munitions for materials, the Ministry of Labour for labour, and the Ministry of Ways and Communications for transport. There will also be a regional advisory committee. We are not told whence the money is to come which all these bodies will assuredly demand, but we doubt whether local bodies will speed themselves up to get into liaison with this army of officials. In the meantime it is very desirable that the taxpayers, on whose pocket the cost of the housing is sure to fall, should be enlightened as to the manner in which the Government houses are to be built. For instance, we should like to know whether the water pipes will be run as much as possible away from the outer walls, or carefully packed if run down them, so as not to freeze in cold weather. Again, will the cut-off taps (if such are supplied, as they should be) be in a place where the tenant can get at them without risking: (*a*) setting the house on fire, (*b*) spoiling his clothes, (*c*) breaking his leg by having to scramble into mainly inaccessible places in a dark loft. Again, if there are electric bells will the cells be put where they can be seen and also easily reached. The members of the Housing Department of the Ministry of Health do live in houses, and have some idea as to what constitutes comfort and freedom from worry in a house be it ever so small. We should like to know that in the projected buildings all these things are being thought out, for they are of immense medical importance. The medical interest in housing does not cease when ordinary questions as to site, aspect, and drainage have been satisfactorily answered.

THE ACTION OF ULTRA-VIOLET RAYS ON THE ACCESSORY FOOD FACTORS.

AN interesting differentiation of the accessory food factors appears in a paper by S. S. Zilva, published in the July number of the *Bio-Chemical Journal*. This investigation showed that the exposure of treated lemon juice to ultra-violet rays in neutral condition does not influence its antiscorbutic activity. Similarly the exposure of autolysed yeast juice for the same length of time does not impair its antineuritic potency; but butter exposed for eight hours to ultra-violet light undergoes a very noticeable change, and the fat-soluble A factor in it becomes inactivated. The moral of this is that butter should be kept in the dark, and it is well known also that light is a contributory factor in rendering butter rancid.

ANDREW CARNEGIE.

BY the death of Andrew Carnegie, in his eighty-fourth year, a conspicuous figure passes from the ken of this world. Born of comparatively poor parents, who were in his childhood ruined by the introduction of the power loom in displacement of the hand loom, he arrived in America with his family in 1848. After passing through the stages of bobbin-boy in a cotton-mill, furnace-boy in a factory, telegraph operator, and various posts in the Pennsylvania Railway Company, he became, in 1863, superintendent of the line. He had both made money and acquired experience, and the enormous development of the iron industry which began after the American Civil War gave him his opportunity. He possessed to the full the faculty of using men, and though naturally kind-hearted and generous, business always came first. In 1873 he put £50,000 into an iron and steel company; 26 years later the business was sold for something over £90,000,000, Carnegie's share being more than a half. Although relentless in his methods of making money he gave away enormous sums, his total benefactions by 1908 being estimated at about £85,000,000, and most of this was devoted to organs, education, peace propaganda, and the Hero Fund. If his benefactions did not bring about all the benefits that he desired it was not for want of will, and his gift of £2,000,000 to Scottish universities is an example to be followed, for all the criticisms which have been showered on it. It is because of this gift that he may be regarded as a supporter of the cause of science. His mentality was curious, his gospel of wealth laid down strict theories as to the duties of wealth, yet, as the great Homestead strike showed in 1892, he was a bitter, even venomous, opponent of organised labour. If he did not live to see one of his ideals realised—namely, the union of Great Britain with the United States—yet he at least saw the two nations brought into more intimate relations than ever before. His other ideal, the abolition of war, received a rude shock in 1914, and while the conflict was being fought out he relapsed into complete seclusion. On the whole it may be said of him, that other men laboured and he entered into their labours, yet he tried his best to do good with wealth which in some ways had ominous origin.

REGISTRAR-GENERAL'S DECENNIAL SUPPLEMENT (1901-1910).

I.

IN Part III. of the recently issued supplement to his seventy-fifth annual report Sir Bernard Mallet contributes a volume which will certainly be welcomed by students of statistical science. This volume contains detailed statistics of natality as well as mortality in England and Wales during the ten years 1901–10, and forms part of a series of decennial reviews of which the first, published in 1864, related to the period 1851–60.

Although in some earlier years summaries of recent mortality had been issued from the General Register Office, Dr. William Farr decided in 1864 to inaugurate a regular system of decennial reviews in which the proportions, resting on the experience of a sufficient number of years, should deserve the confidence of statisticians. At the close of each subsequent decennium similar supplements have been issued, retaining to a large extent the essential features of the original volume. In this report the Registrar-General presents an interesting review of the whole series from 1851–60 onwards. He expresses regret at the late appearance of the work, but attributes the delay to the war, which has entailed depletion of the staff and imposed new and urgent duties upon those responsible for the production of this volume. The present supplement, like its several predecessors, deals with registration areas, which, except in the case of counties, are not coextensive with any territories used for public health or other administrative purposes. It is the last of its kind, the scheme designed for the next supplement being based on administrative in place of registration districts as the local units for tabulation.

Natality, Legitimate and Illegitimate.

The births in England and Wales during the ten years ended in 1910 numbered 9,298,209, of which 370,418 were born out of wedlock. There has been a creditable decrease of illegitimacy between 1871–80 and 1901–10, a decrease which is the more remarkable as it commenced whilst the legitimate birth-rate was still rising. Stated in terms of the living at all ages, the decennial birth-rate in the course of the last six decennia has varied from 35·4 in 1871–80 to 27·2 in 1901–10; but, calculated as it ought to be, in proportion to the numbers of women of child-bearing ages—i.e., from 15 to 45—the birth-rate shows a greater fall than when calculated on the aggregate population.

Natural Increase of Population in Recent Decennia.

The mean populations employed in this volume were calculated by the method described in the annual report for 1907, which is a modification of that used for the decennial supplement of 1891–1900. The results obtained by the two methods differ very slightly, the main principles in both cases being identical. The estimated mean population of England and Wales in the latest decennium was 34,180,202 persons, among whom females were in excess by more than a million.

The natural increase of the population by excess of births over deaths in each of the last six decennia is shown by a table from which it appears that the fall in the death-rate had almost exactly compensated for the fall in the birth-rate throughout the period from 1851–60 to 1901–10. But, during the latest decennium this balance has been upset, the further decline in the death-rate being insufficient to compensate for the fall in the birth-rate, even before the war. Dr. T. H. C. Stevenson gives reasons for believing that "these excesses of crude birth-rate over crude death-rate (which are of practical importance as measuring the rate of increase actually occurring) are the result in each case of two factors, the tendency towards reproduction or death, and the opportunities afforded by each population for the display of these tendencies."

Deaths and Standardisation of Death-rates.

The deaths registered in England and Wales during the decennium 1901–10 numbered 5,248,774, corresponding to a crude rate of 15·4 per 1000 living, which is the lowest recorded since the establishment of civil registration. From a table of male and female death-rates in the respective decennia it appears that mortality has fallen by 30 per cent. in the course of the last 60 years, the fall in 1901–10 being much more rapid than in any previous decennium. For comparative purposes it has long been the Registrar-General's practice to express mortality in the form of "corrected death-rates"—i.e., rates "weighted" to allow for differences of sex and age in the population experiencing the observed mortality. These rates are now referred to as "standardised," the reasons for this change having been explained in the annual report for 1911. The enumerated population of England and Wales in 1901 has been retained as the standard in the present volume, and all standardised rates incidental to earlier decennia have been recalculated accordingly. From a useful table we learn that during the last half century a much greater decline has occurred in the mortality of females than in that of males at all ages from 15 upwards. This has had the effect of increasing the excess of mortality in the male sex which has been manifest at all adult ages from the earliest periods for which records are accessible. This excess has long been, and still is, very marked at age 45–55, when it amounts to 30 per cent. But the changes at some other ages are even more noteworthy. Thus, equality of mortality between the sexes at age 35–45 in 1841–50 has been converted into a male excess of 22 per cent. in 1901–10, and a female excess mortality of about 6 per cent. at ages 25–35 in 1841–50 has gradually been changed into a male excess of 17 per cent. in 1901–10. It is notorious that the number of females aged 20–25 has been overstated in the Census returns. And if such misstatement at this period did not apply equally to the returns of age at death, it would have the effect of reducing the recorded mortality of females at this age, and so, possibly, of converting a real deficiency into an apparent excess of male mortality. Nevertheless, there can be no doubt of the male excess in 1901–10, when it amounted to not less than 19 per cent. At ages 15–20 the pre-existing excess of female has during the last two decennia been converted into an excess of male mortality.

At age 5–10, on the other hand, female excess has during the same period replaced a pre-existing excess of male mortality. This is the only age-period at which the mortality of females has increased relatively to that of males. At age 10–15 the death-rate of females has been in excess throughout the seven decennia, though in 1871–80 practical equality was attained. It is particularly noteworthy that at every age-period from 5 to 25 years among males and from 5 to 35 years among females the mortality in 1901–10 was less than half that recorded 50 years previously—viz., in 1851–60. The decline in mortality in 1901–10 from that in the preceding decennium was shared by each sex at every age-group, the slight increase among young children experienced in 1891–1900 having given place to a decrease in 1901–10 amounting to 20 per cent.

Mortality in Infancy and Early Childhood.

An outstanding feature of the decennium under review is the substantial diminution in loss of life among young children, especially infants. The mortality of infants in their first year was equal to 128 per 1000 births, while that of children under 5 years was equal to 46 per 1000 living at that age. Both of these rates are the lowest recorded in any previous decennium. The fall in the mortality of the first year of life started about the beginning of this century. Infant mortality in the last quinquennium of the nineteenth century was as high as it had ever been since 1837, and had been slowly rising for 15 years. The remarkable fall since experienced commenced with the year 1902. The death-rate in the first five years of life, which had been stationary in the last three quinquennia of the nineteenth century, began to fall again with the first year of the new century. It has since maintained an almost parallel course with that of infant mortality, of which, naturally, it is largely composed.

It is noteworthy how closely the relative position of the English counties, as regards mortality in early life, corresponds to that of subsequent ages in the aggregate. The six counties with highest total mortality—viz., Stafford, West Riding, Glamorgan, Northumberland, Durham, and Lancaster—return also the highest mortality at ages under 5 years, almost in the same order, as well as furnishing five out of the six highest places in infant mortality. Evidently the environment which weeds out most of the weeklings in early life is also the most prejudicial to survival at later ages. A similar conclusion would be reached if comparison were made between *countries* instead of *counties* as above, and it seems to follow that measures

which preserve the lives of young children must generally promote the vitality of survivors likewise.

The distribution of mortality over each of the first five years of life is here discussed, both for the country at large and for the urban and rural groups of counties. The difference between urban and rural environment appears to influence the death-rate considerably more in the second and each of the three succeeding years of life than in the first. The urban excess, which is 30 per cent. in the first year after birth, grows to not less than 96 per cent. in the second and third years, after which it declines to 56 per cent. in the fifth year. This excess is at all ages much less due to the extent by which the urban rates exceed the average, than to that by which the rural rates fall below it; this, indeed, is natural, in view of the relative populations of the two groups. Among girls the favourable effect of rural environment is more perceptible than among boys at the earlier ages, but after the second year there is scarcely any difference in this respect. The death-rate of females, which is much below that of males in the first year after birth, gradually approximates to it in the next three years, and in the fifth year even slightly exceeds it, as it tends to do also in the two subsequent quinquennia of age. So considerable is the influence of environment on life and health during the second and third years of life that whilst in 1901–10 the mortality of the urban group of counties in the third year was practically identical with that at all ages together, that of the rural group was only two-thirds of the corresponding figure for that group at all ages. In childhood the difference between urban and rural mortality may be regarded as a rough indication of the comparative extent to which mortality generally is preventable. And thus the extreme importance is emphasised of safeguarding the health of children in the years intervening between infancy and compulsory school attendance—a matter which is now happily receiving the public attention which it deserves.

THE PUBLIC SUPPLY OF VACCINE LYMPH.

A MEMORANDUM has been prepared by the Ministry of Health, for the use of the medical officer of health, in connexion with the supply and use of vaccine lymph for the vaccination or revaccination of persons who may have been exposed to small-pox infection. The Memorandum has been prepared for convenience of reference in consequence of a number of small outbreaks of small-pox that have occurred during recent months in which it was evident that the procedure to obtain vaccine lymph is not always fully understood. The Memorandum runs as follows:—

1. The importance of obtaining the prompt vaccination of persons who have been exposed to small-pox infection needs to be emphasised, as cases have recently occurred in which known contacts of small-pox cases have not been offered vaccination promptly and subsequently have developed small-pox.

2. It is the duty of the public vaccinator to vaccinate or revaccinate at the public expense persons in his district who apply to him for the purpose, and who have not previously been vaccinated or revaccinated within a period of ten years. Vaccination of small-pox contacts by the public vaccinator should therefore be regarded as the ordinary procedure when this can be arranged without causing delay. In this connexion it should be remembered that public vaccinators frequently have in their possession a recent supply of vaccine lymph ready for use. In any case, the medical officer of health is requested immediately to acquaint the public vaccinator and vaccination officer concerned when cases of small-pox come to his notice.

3. Vaccination of small-pox contacts may also be carried out by the medical officer of health without reference to the public vaccinator, and sometimes it is obviously the best course that these contacts should be vaccinated by him at once when the fact of exposure to infection has been discovered. The Local Government Board issued in 1917 the "Public Health (Small-pox Prevention) Regulations," which provided that: "The medical officer of health of any local authority may, on the occurrence of any case of small-pox and where the circumstances, in his opinion, so require and permit, perform vaccination or revaccination on any person who has come in contact with the infection and is willing to be vaccinated, and without charge to the said person."

4. Vaccine lymph from the Government Lymph Establishment will be supplied for this purpose to medical officers of health on application by letter, telegram, or telephone to the Government Lymph Establishment, Colindale Avenue, The Hyde, London, N.W. 9. Telegraphic address: "Defender," Hyde, London." Telephone No.: Kingsbury 41 (London District).

The next three sections of the Memorandum contain important counsel and information. The Government Lymph Establishment advise that lymph sent out by them should be used within a week of its receipt as an obvious precaution against unnecessary storing. An exception can be made in the case of ports in frequent communication with the continent if the medical officers of health of such ports communicate with the Establishment. It is also stated that lymph supplied to medical officers of health is for vaccinations performed by them, their assistants, or deputies, while arrangements for facilitating public vaccination in an affected district will continue to rest with the boards of guardians and public vaccinators. Medical officers of health, in vaccinating contacts, are enjoined to keep a dated record of vaccination, revaccination, and their results, with name, age, and address of the subject. Where Government lymph is employed the official reference number should be recorded, and lymph from supplies where no information concerning source is kept should not be employed.

The Memorandum quotes from a circular of the Local Government Board of Feb. 13th, 1917, the regulations referred to in its third paragraph, which run as follows:—

(*a*) Vaccination should at every stage be carried out with aseptic precautions, which should include the cleansing of the surface of the skin before vaccination, the use of sterilised instruments, and the protection of the vaccinated surface against extraneous infection both on the performance of the operation and on inspection of the results. Advice as to the precautions to be taken in this respect until the scabs have fallen and the arm has healed should always be given to the person vaccinated or, in the case of the vaccination of a child not more than 14 years of age, to the parent or other person having the custody of the child.

(*b*) In all ordinary cases of primary vaccination the vaccinator should aim at producing four separate good-sized vesicles or group of vesicles not less that half an inch from one another. The total area of vesiculation resulting from the vaccination should not be less than half a square inch.

(*c*) If any person vaccinated or revaccinated requires medical treatment in consequence of the vaccination or revaccination, the local authority should offer to provide such medical treatment as may be required.

(*d*) The local authority should arrange to pay to the medical officer of health such sum as is reasonable in respect of the extra work which he undertakes in pursuance of these regulations. For their guidance the Board may state that in their view the payment should be not less than 2*s*. 6*d*. for every vaccination or revaccination performed.

When a medical officer of health reports to the Ministry of Health a case of small-pox in his district (Article XIX. of the Local Government Board's General Order of Dec. 13th, 1910), it is desirable that he should add a note regarding the steps taken to secure the vaccination of contacts. Recent experience shows that it is important to bear in mind that inspectors or others concerned with the removal of small-pox cases or the disinfection of their clothing, and members of hospital staffs who at any time are likely to come into contact with a small-pox case, should at all times be well protected by revaccination, and should not take the risk of waiting to be vaccinated until exposure to infection has occurred.

DROUGHT IN BELFAST.—Like many other places in the United Kingdom Belfast is now feeling the effects of the continued drought. July is usually a wet month, but during July of 1919 rain to the extent of only 0·68 in. fell in nine days, the average for the previous 44 years being 2·80 in. during that month. Indeed, for the whole of the year 1919, up to July, the rainfall has been only 15·15 in., while the average is 20·51 in. All over Ulster the weather has been very dry; for example, in Warrenpoint, at the head of Carlingford Lough, there were only four days in July during which rain fell to the extent of 0·54 in., while in the same month of 1918 rain fell to the extent of 5·11 in. in 18 days. As a result farmers and water commissioners are becoming uneasy. In Belfast the water in store on July 31st was reduced to 1461 million gallons—that is, 340 million gallons less than at a corresponding date in last year. The supply has been already reduced, and it is announced that, if the weather continues, a still further reduction will be made.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Prevalence of Rabies in Paris and in the Department of the Seine and Oise.

THE annals of the Pasteur Institute contain the annual report for 1918 of the Institute with respect to the treatment of rabies for the year. The tables affixed to the report make very instructive reading, for they display a great progression of cases of rabies observed and treated. The number of these cases amounts to 1803 for the year 1918, while the information collected by the antirabic service allows us to foresee that for 1919 the total will be still higher. In 1914 only 373 cases came under treatment. It is in the Department of the Seine and Oise that increase has been particularly marked. Before the war from this department only 30 cases of rabies came to the cognisance of the Institute each year. In 1918 there were 193 cases.

Boric Acid in the Preservation of Food.

The report by M. Lindet to a committee of the Health and Hygiene Department of the Seine calls attention to the increased employment of boric acid in connexion with foodstuffs, and dwells on the dangers which emerge for public health. Before the war such employment of boric acid was interdicted where not limited to small percentages in case of certain products. Severe proceedings have been taken against the manufacturers of soft cheese, who employ for preservative purposes a German speciality containing boric acid to a degree which renders the food dangerous to habitual consumers. The war suppressed the importation of this stuff and the cheeses grew better, but to-day there is a renewed danger, the incriminated substances, no doubt, coming into France by devious routes. Moreover, there is a sale now for the yelks of eggs, rare and costly delicacies, which have been preserved by boric acid, while butchers use borates to retard putrefaction of their wares, and so do those who sell fish and butter. Evidently the use of boric acid is not being controlled owing to the urgent food difficulties of the war. M. Lindet's report concludes with a demand for the return to the legal repression of these dangerous procedures.

Æsthetic Surgery.

Æsthetic surgery, or, as you call it, cosmetic surgery, continues to develop its territory. Two communications have already been received at the Academy of Medicine upon the correction of nasal deformities by surgical intervention within the nostrils and under the skin, the sections and sutures being carried on without any cicatricial result which is visible from without. More recently Dr. Passot has undertaken the cure of wrinkles. He had observed that when the skin in front and above the ear was pulled upon obliquely from below upwards and backwards effacement of many wrinkles took place, while folds due to laxity of the integument disappeared. His technique for obtaining these results consists of a little cutaneous resection under local anæsthesia at a site preferentially covered by the hair. The scalp is shaved before the operation, and cicatrices will be hidden by the growing hair. The operation, made with full aseptic precautions and followed by minute suturing, gives, he considers, excellent results, no trace of the proceeding remaining. For wrinkles on the forehead a similar operation is practised in the temporal region. The hair having been shaved previously, the cuts here are spindle-shaped. These little operations appear to have been followed with considerable success, particularly among women.

Venous Tension and Varicose Veins.

Dr. Mabille has made important advance in the diagnosis and treatment of varicose veins in employing the sphygmometer and the viscometer, in order to measure the blood-tension in venous system. This examination is made in the recumbent position, the leg being first horizontal and then vertical; then in the sitting position, the legs hanging down; and finally, in the standing position. The observation of the differential pressure measuring the deviation between the maximum and minimum pressures, and of the oscillometric index, allow venous troubles to be classified in three groups:—(1) Venous erethism, temporary troubles due to fatigue or to the great ingestion of liquid; (2) valvular insufficiency; and (3) endocrine troubles. Each of these has its different characteristics. This procedure allows the fixing of rules for treatment: to the first category of cases massage is assigned, to the second surgical intervention with resection of the femoral vein, and to the third treatment by medicaments.

August 11th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

The Influenza Epidemic.

FOR the last two months the feature of the epidemic in Victoria has been the steady level of morbidity and mortality. From 10 to 12 deaths daily occur for the whole State. The number of hospital patients is gradually diminishing. There are at present about 750 in public hospitals. In New South Wales the lifting of the restrictions soon after Easter was followed by an immediate, though not explosive, spread, just as happened in Victoria. During the past month in Sydney the spread has been very acute, and the death-rate has become very serious, although it is difficult to say what ratio it bears to the actual number of cases. Banks and public offices have been partly closed owing to shortage of staffs. There are at present 2000 hospital cases, and fear is expressed that further accommodation will have to be provided. The Government have not reapplied the restrictions as to masks or public assemblies, and the chief health officer for Sydney has expressed the opinion that no measures of public health are likely to be of any avail. In Brisbane the disease has appeared in epidemic form, but has never reached alarming proportions, although the death-roll already numbers some hundreds. In South Australia it appears to be smouldering. Tasmania still remains free, and owing to the shipping strike has practically been cut off completely from the mainland for the last month. Lord Jellicoe visited several Tasmanian harbours, but no communication was allowed with the shore.

Returning Troops.

Practically the last of the hospital cases from overseas have arrived in the hospital ship *Karoola*. The system of dealing with returning men in Victoria, or, as it is called, "finalising" them, has been brought to very smooth working. The men are brought straight from the transport to a depôt where a number of medical boards are in waiting. The medical officers sit in groups of two and mark the men in three divisions. Those who have suffered no disability and are well are classed A and discharged forthwith. Those who have suffered disability but do not need treatment are B and are awarded a pension on the spot, which is subject to review in six months. Those who need treatment in hospital are sent to Caulfield Military Hospital; those who need out-patient attention or require a special examination to assess their pension rights, are referred to No. 5 A. G. H., now used only for out-patient cases. As many as 500 men are handled in an hour and a half by seven boards, and the system is popular with the men. The scene outside the depôt where the relatives of the men are in waiting is one of considerable animation, and everyone inside works their hardest to pass the men out as rapidly as possible. Every man is examined by a dentist and given the right to six months' dental attention if needed, whether discharged or not. The Red Cross officials also give each man a parcel of underclothing.

A Question of Ethics.

An ethical question is attracting attention in Sydney. Professor D. A. Welsh, who occupies the chair of pathology in the University, recently wrote several articles over his own name in the *Sun*, a Sydney daily newspaper, on the subject of influenza. This constitutes a breach of the by-laws of the New South Wales branch of the British Medical Association, and the matter was brought to the notice of the local council. Professor Welsh wrote intimating that he would resign his membership of the branch, but the council replied that he could not do so unless he also resigned his membership of the British Medical Association. There the matter stands at present. Professor Welsh is one of the three members of the consultative council on influenza appointed by the Government in New South Wales.

Medical Honours.

Several well-known practitioners have received distinctions in the Birthday Honours. Sir J. C. Verco has been a leader in Adelaide for many years, and has held almost every position of professional distinction as a practitioner and teacher. Surgeon-General C. S. Ryan, of Melbourne, has received the honour of C.B.E. Dr. T. P. Dunhill receives a C.M.G.

Eliza Hall Institute.

The position of director of the Eliza Hall Institute of Research, which been established at the Melbourne Hospital by an endowment for that purpose, has been given to Dr. S. W. Patterson, who is a graduate of the Melbourne University, but has been for some years engaged in special study in London. Dr. Patterson served during the war with the rank of major in the R.A.M.C.

June 26th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

The Soldier's Life in India.

REFERRING to the relief of the Territorials which is now proceeding, a leading Indian journal says: "Apart from their military services, one of the most important achievements of the Territorial in India has been his success in obtaining better conditions for soldiers in garrison. The old regular who happens to be in India to-day will admit the amenities of his life have been enormously increased. For much of this the new units will have to thank the Territorial officers and men who, having a 'divine discontent,' made it felt to good effect."

Red Cross Work for the Afghan War.

The Indian branch of the Joint War Committee of St. John and the Red Cross telegraphed within 24 hours of the outbreak of hostilities for supplies to be sent up to the front from the main depôt at Bombay. Shortly afterwards the five Assistant Red Cross Commissioners, whose services had been obtained from the Commander-in-Chief, arrived at their bases at Rawal Pindi, Peshawar, Kohat, Bannu, and Quetta. Since then the committee have been receiving indents from them almost daily and have already sent up supplies valued at five lakhs of rupees (£33,000 sterling).

Women's Medical Service.

The Central Committee of the Countess of Dufferin's Fund for the junior branch of the Women's Medical Service for India announces that in selected cases promotion will be made from the junior to the senior branch of the Women's Medical Service. Such selection will be made from any grade, even the lowest, when the Selection Committee is convinced that promotion is deserved and a vacancy has occurred. Should the Central Committee consider that it would be in the interests of any of the members recommended for selection to proceed to Europe for post-graduate study financial assistance will be given to deserving members in their own and the public interest. In such cases definite courses of study will be laid down such as may from time to time be found suited to the requirements of India. It must, however, be understood that the number of vacancies in the senior Women's Medical Service is at present small, although it is hoped that the service may in the near future be augmented.

Calcutta Ophthalmic Hospital.

The absence of an efficient ophthalmic hospital in Calcutta has long been a reproach to Bengal. The existing hospital is inadequate and ill-equipped, and it has to serve not only the requirements of Bengal but of areas outside that province, patients coming from great distances to be treated. Just before the war the Government is understood to have purchased a site for a new hospital. The Indian press has been commenting on the subject in strong terms, and it suggests that what is wanting is a larger conception of the whole situation regarding the treatment of eye diseases in India and a more statesmanlike way of dealing with it.

Beggars in Madras.

An agitation is on foot in Madras to do something to control the large number of diseased beggars who infest the streets. The Governor has just issued an appeal on behalf of the lepers, for whose suffering thousands much more ought to be done than has been achieved in the past; but until it is recognised as an offence instead of a legitimate profession to beg from every possible victim, the large army of those who exist by this means will prefer to pick up their living as hitherto.

I.M.S. Officers from Ceylon.

In response to the appeal recently made for recruits from Ceylon, upwards of 50 applications have been received from Ceylon doctors desirous of joining the Indian Medical Service. The number of Ceylon Government medical officers allowed to join the Indian service has not yet been decided on.

Pilgrimage Sanitation.

The Government of Bihar and Orissa have submitted to the Government of India a Bill to make better provision for the control and sanitation of places of pilgrimage in the province.

Bombay Water-supply.

A recent official report by the municipal hydraulic engineer stated that "if two consequent failures of the monsoon should occur before the water-supply is again increased, it will be absolutely necessary to stop all water supplied for trade purposes." The daily amount available for domestic supply during the last nine months has been only 22 gallons a head of the population.

July 20th.

URBAN VITAL STATISTICS.

(Week ended August 9th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had been 9·0, 10·3, and 9·7 in the three preceding weeks, was again 9·7 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual rate was 9·5 per 1000, and coincided with that in the previous week, while among the remaining towns the rates ranged from 2·9 in Wimbledon, 3·0 in Willesden, and 3·5 in Ilford, to 15·5 in St. Helens, 16·2 in South Shields, and 16·5 in Stockton-on-Tees. The principal epidemic diseases caused 131 deaths, which corresponded to an annual rate of 0·4 per 1000, and included 53 from infantile diarrhœa, 36 from diphtheria, 21 from measles, 11 from whooping-cough, 7 from scarlet fever, and 3 from enteric fever. Diphtheria caused a death-rate of 1·0 in Bolton, 1·1 in Portsmouth, and 1·2 in St. Helens. There were 1547 cases of scarlet fever, 1092 of diphtheria, and 1 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1538, 1117, and 2 respectively at the end of the previous week. The causes of 25 deaths in the 96 towns were uncertified, of which 5 were registered in Liverpool, 4 in London, and 3 in Gateshead.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had been 10·6, 11·1, and 10·6 in the three preceding weeks, further declined to 10·0 per 1000. The 224 deaths in Glasgow corresponded to an annual rate of 10·4 per 1000, and included 9 from infantile diarrhœa, 4 from diphtheria, 3 from enteric fever, and 2 each from measles and whooping-cough. The 62 deaths in Edinburgh were equal to a rate of 9·6 per 1000, and included 1 each from whooping-cough and diphtheria.

Irish Towns.—The 99 deaths in Dublin corresponded to an annual rate of 12·7, or 0·9 per 1000 above that recorded in the previous week, and included 12 from infantile diarrhœa and 1 each from enteric fever and measles. The 73 deaths in Belfast were equal to a rate of 9·5 per 1000, and included 2 from infantile diarrhœa and 1 from scarlet fever.

DONATIONS AND BEQUESTS.—By the will of the late Sir Archibald Davis Dawnay, of Cedars-road, Clapham Common, Mayor of Wandsworth, the testator has left, among other bequests, 5000 £1 shares in Messrs. Dawnay and Sons, Ltd., each to King Edward's Hospital (Cardiff Infirmary) and the Putney Hospital, Lower Common, Putney; 500 shares to the Royal Hospital for Incurables; his premises known as Eddington, Barnet Wood-lane, Ashtead, to the Putney Hospital; and No. 108, Penylan-road, Cardiff, to King Edward's Hospital (Cardiff Infirmary).

FATALITY FROM CARRYING LOOSE MATCHES.—At an inquest held by Mr. Ingleby Oddie on August 5th at Lambeth on the body of David Rothery, aged 17, employed by the Nugget Polish Company, a witness stated that he saw Rothery with his clothing alight. He turned the hose on him and put the flames out. Rothery's clothes were saturated with turpentine, and before his removal to the hospital he stated that he had stumbled over a barrel, when some loose matches in his pocket caught fire. A verdict of "Accidental death" was returned.

Correspondence.

"Audi alteram partem."

INTRAVENOUS INJECTIONS OF ANTIMONY TARTRATE IN BILHARZIASIS.

To the Editor of THE LANCET.

SIR,—Dr. Frank E. Taylor's series of ten cases of vesical bilharziasis treated successfully by antimony tartrate, as recorded in THE LANCET of August 9th, are very interesting because they are all British soldiers who contracted the disease in Egypt during the recent war. There must be hundreds of soldiers in this country similarly infected, and, in view of the fact that such cases if not cured will demand and receive pensions, it is of importance that this treatment should become known and scientifically carried out by keen and able observers. The treatment needs care and skill and some tenacity of purpose, for it demands, to ensure success, that the urine shall be examined microscopically every day of injection. But care, skill, and tenacity of purpose expended are amply repaid by the great interest of the developments which result and by the certainty of the cure.

Mr. J. R. Newlove and I reported at length [1] details of the treatment as carried out at the Khartoum Civil Hospital during the last two and a half years. Over 70 cases were included in that paper and we have watched the result of treatment in some cases for a period of over two years. The result has conclusively demonstrated the permanency of the cures.

With regard to the series of cases reported by Dr. Taylor I shall not be surprised if, in every case, ova reappear in the urine and with the ova hæmaturia (microscopic blood only perhaps) and some albuminuria. But supposing, as is most likely, ova do appear again in the urine of these cases this will not mean that the treatment has not been successful, for the ova are those already deposited by the worms before the course of treatment. They, naturally, are eliminated as foreign bodies, even after the death of the worms. In some of our cases dead ova were eliminated for two years after the course of injection. Further, if the ova which are eliminated after a total of 10 or 15 gr. of antimony tartrate have been injected be microscopically examined it will be found that they are *small*, *shrivelled*, *black*, and have lost their double contour, and that their contents are granular and do not show the outline of primitive organs. They are, in fact, dead, sterile, and incapable of harm.

Antimony tartrate not only kills the bilharzia worms in the portal circulation; it also acts directly on the ova already deposited in the bladder and rectum, and these ova, although they are eliminated in due course, are sterile—in fact, the patient has ceased to be a carrier of bilharzia disease. That the ova are sterilised by antimony tartrate is a fact more important than that the worms are killed. Prophylaxis is more important than the individual cure.

The case reported by Major R. G. Archibald and Major Arthur Innes [2] should never have been reported as a case of death from the treatment. He died of influenzal pneumonia, as was shown by the post-mortem examination. I have written fully in reply to this paper.[3] Any fatty degeneration found by the authors in the organs was probably due to other causes—intestinal parasites, ankylostomum, tænia nana, or to bilharzia itself (it is a mistake to think that bilharzia acts as a mere mechanical agent and that the only effect is the physical one, the ova acting merely as foreign bodies; Ferguson and Fairley have both shown that bilharzia is more far-reaching in its effects). It has yet to be proved that antimony tartrate, given in doses necessary to cure bilharzia (25–30 gr.), gives rise to fatty degeneration, or, in fact, that its causes fatty degeneration at all. Other workers have recorded cases of bilharzia where 37 and even 67 gr. have been given, and, as Dr. Taylor states, very much larger doses have been given for trypanosomiasis and, I may add, for kala-azar, without any untoward result.

The suggestion of Major Archibald that the deaths which have occurred in cases of kala-azar where antimony tartrate has been used are due to fat embolism needs a rather serious call on the imagination, for it is difficult to believe that microscopic fat, deposited in the cells of an organ, becomes dislodged and finds its way into the blood-vessels and so to the heart to form the embolus. So far as my experience goes, these cases of death in kala-azar are due to heart failure—e.g., an emaciated kala-azar patient after an injection tries to sit up in bed, or perhaps gets out of bed to urinate or defæcate in the absence of the attendant, and the resulting heart-strain is in itself sufficient to produce the fatal result in the later stages of the disease. In bilharzia the patient is not as a rule weak and this danger does not present itself.

For the information of practitioners who may wish to give this treatment a trial I append a list of references to papers of workers who have written on the subject of the antimony tartrate cure for bilharziasis.

References.

1. Macdonagh, J. E. R.: The Biology and Treatment of Venereal Disease, 1915.
2. Wiley, C. J.: Brit. Med. Jour., 1918, ii., 716.
3. Low, G. C.: Jour. of Trop. Med. and Hygiene, May 18th, 1919.
4. Archibald and Innes: Jour. of Trop. Med. and Hygiene, April 1st, 1919.
5. Taylor, F. E.: THE LANCET, August 9th, 1919, 462.
6. Christopherson, J. B.: THE LANCET, Sept. 7th, 1918, 325; Brit. Med. Jour., 1918, ii., 652, and April 19th, 1919, 489; THE LANCET, June 14th, 1919, 1021; Jour. of Trop. Med. and Hygiene, June 16th, 1919, ii., and July 15th, 1919.

I am, Sir, yours faithfully,

August 10th, 1919. J. B. CHRISTOPHERSON.

THE ORIGIN OF LIFE: THE WORK OF THE LATE CHARLTON BASTIAN.

To the Editor of THE LANCET.

SIR,—In my letter concerning the origin of life published in your issue of August 2nd I said, referring to Hon. H. Onslow's experiments, "I suggest that Mr. Onslow kept some of his 'white solution' tubes far too long—three years in some cases—before opening them and examining their contents." Mr. Onslow refers to this as a misrepresentation. I should be sorry to have misrepresented Mr. Onslow in any way in discussing his experiments or the results thereof, but my information was obtained solely from his own published report, contained in the Proceedings of the Royal Society, B 628, p. 268, wherein he seeks to prove—and does prove to the entire satisfaction of several persons—that my father was totally in error not only in regard to his facts, as recorded in his book, "The Origin of Life," but in regard to the necessary interpretation arising therefrom. Mr. Onslow states that 8 out of 10 tubes of his "white solution," cited as being typical examples of the whole series, were kept for 33½ months before they were opened. This is certainly too long, and in such circumstances the tubes could only contain, as they did, dead organisms.

Without quoting in extenso what is said in Mr. Onslow's report, I think any reader of it will acquit me of misrepresentation. I plead guilty only to a legitimate misunderstanding of this account of scientific experiments, which, by Mr. Onslow's own showing, is a very incomplete one, in parts somewhat vague. Furthermore, the experiments strike me as being open to criticism in some other respects, notably as regards the kind of glass used, which, to the best of my recollection, was not "hard German glass" but soft soda glass. I consider Mr. Onslow's conclusions should not be finally accepted as refuting the conclusions of my father which were based on such a prolonged, careful and systematic research. It is, perhaps, just as likely that Mr. Onslow's comparatively few negative results are open to as much criticism as the many alleged positive results obtained by my father and others. What work of this nature could be expected to be entirely free from error? In any case we are not in a position to judge as to the cogency of this or that series of experimental results unless we are put in possession of *all* the facts and are shown, by way of some help, photomicrographs of what was actually found in the experimental tubes—dead or alive.

It is for these reasons, and because I venture to think that sufficient evidence has not yet been produced to disprove the reality of archebiosis, that I would urge the necessity of my father's experiments, not only in archebiosis but also in

[1] Journal of Tropical Medicine and Hygiene, July 16th, 1919.
[2] Ibid., April 1st, 1919.
[3] Ibid., June 14th, 1919.

heterogenesis, being repeated in many different quarters by independent observers. It is only by these means that we may expect the ultimate truth to be revealed.

I am, Sir, yours faithfully,

W. BASTIAN,

Chesham Bois, August 10th, 1919. Surgeon Commander, R.N.

To the Editor of THE LANCET.

SIR,—A word of explanation is needed in reply to M. Albert Mary's interesting letter in your issue of August 9th. The effects due to radioactivity are totally distinct from those produced by barium, strontium, calcium, manganese, or lead. For the latter precipitate in the course of time to the bottom of the test-tubes, whilst the former remain at the top. These disappear when heated or exposed to daylight, and reappear again when kept for some hours in the dark. They have all the properties of Mr. Emil Hatschek's vortices referred to in my previous letter of July 26th. Mr. Raphaël Dubois, as M. Mary is perhaps unaware, did not describe anything of the sort, and his observations refer merely to the "grosses vacuolides," which are undoubtedly not due to radioactivity. It is clear, therefore, that he did not, in the first instance at any rate, observe the bodies I have called radiobes, which I am convinced are due to radium and are totally distinct from his vacuolides, for they are much smaller and possess different properties. Furthermore, they are not vesicles, and are, on the other hand, too large to be bubbles of the emanation (as Sir William Ramsay suggested), the quantity of radium salt used being insufficient for this. The best results are obtained with the weak salt of radium chloride. Strong radium bromide almost obliterates the effect, probably owing to the heat evolved or other influence of the bombardment.

As I have already suggested, each α-particle should give rise to a vortex in the "gel"; and as these particles are being continually projected in all directions a series of such bodies in "massed formations," ever moving forward, would endeavour to force their way out, and ultimately a scrimmage would ensue, when the group finally segregated; each half going its own way. I estimate on Sir Ernest Rutherford's most recent work on α-particles[1] that the boundary would be about 0·3μ, the size I had found to be the maximum for radiobes.[2] This boundary formed by the α-particles' vortices would be the nucleus which I have observed, whereas the outer boundary would be due to the fast-moving H-atoms which Rutherford and Marsden have found to be projected through the violent impact of the α-particles with oxygen, nitrogen, carbon, and hydrogen. It is noteworthy, as it appears from their latest results, that the principal constituents of protoplasm—namely, H, C, N, and O—are the ones which are thus broken up by the α-particles; heavier atoms not being so affected.

According to the "principle of relativity" now so much discussed by physicists, there should be a directional force as the resultant influence of all the α-particles; for the effect of the earth's rotation would impart to these an unequal motion in different directions; an effect of about 0·4 per cent. This should give the aggregate of vortices so produced a tendency to evolve in one particular direction rather than another; and thus, perhaps, give us a physical analogue to the "élan vital" of living matter, to which hitherto there has been no clue, from physico-chemical considerations. My earlier experiments seemed to indicate something of the sort with radium, that could not be accounted for at the time; but I am investigating the matter further in the light of more recent facts on these lines. The suggestion, then, in my previous letter to you was that similar effects might be set going by purely catalytic actions, if α-particles are emitted with sufficient violence in chemical reactions; and it is possible, in the light of these considerations, that Dr. Bastian's and M. Mary's synthetic corpuscles may owe their origin to this cause, which, whether it produces them or not, should thus give rise to others like them.

I am, Sir, yours faithfully,

Kingston Hill, August 9th, 1919. J. BUTLER BURKE.

*** The original title of this correspondence indicated the question at issue to be the accuracy of the work of the late Charlton Bastian.—ED. L.

[1] See his papers in the Philosophical Magazine, June, 1919, and his Royal Institution lecture, Nature, July 31st, 1919.

[2] Nature, May 25th, 1905.

TALENT AND MISCEGENATION.

To the Editor of THE LANCET.

SIR,—It is reported of one of the modern gladiators who, for good or evil, command to-day so much public attention and support, that he has in him a good deal of American Indian blood. The same was said of Longboat, a Marathon runner, as also of a musical comedy actress well known over here in the "nineties." But the coincidence of mixed race with distinction is not confined to those whom Aristotle would have called professors of the little arts. Ouida was half French, Lettsom of creole extraction. The late Watts Dunton's origin was always supposed to include a gypsy element. It is curious that Mr. W. B. Yeats, the noted poet, has a parentage exactly similar to that of the Brontës—namely, an Irish father and a Cornish mother. Rossetti was three-quarter English and one-quarter Italian. Freud, Ehrlich, Bergson, and Kerensky have, or had, plenty of Jewish blood. And one could go on in like fashion for a long time, overloading this letter with capitals and proper names. It seems a pity that the subject is not investigated more. There does exist a German work upon it, reviewed in the medical press of this country about a dozen years ago. Mr. Havelock Ellis, too, has touched it in his study of British genius. Of his 1030 persons of ability, 143 sprang from some degree of miscegenation, which is, perhaps, a high proportion for an island country, 97 being mixed British—i.e., of intermingled English, Irish, Scotch, or Welsh origin—and 46 mixed British and foreign. English-Irish was found to be the commonest of the former crosses, and of the latter English-French. Among the few women in the list about a third were of mixed race, the English-Irish combination again coming first. Mr. Ellis's qualification for inclusion in his study material was rather high, as a general thing a notice of at least three pages in the "Dictionary of National Biography." It is possible, however, that miscegenation tends to the production of various kinds of minor talent, too. In turning over the pages of a large encyclopædia, in reading obituary notices, in recalling persons of ability among ordinary acquaintances, one is apt to come upon the phenomenon under notice.

Miscegenation in Theatrical Celebrities.

It is curious, again, on going through Mr. Ellis's detailed list, to have found that the celebrities of mixed blood include Garrick, Mrs. Siddons, Macready, the two Kembles, Helen Faucit, Kitty Clive, Barry Sullivan, and Kelly. Clearly there are here the flower of British acting. Five out of these nine owned continental strains of blood. Playwriters are numerous too—Marston, D'Urfey, Lillo, Killigrew, Vanbrugh, Beddoes, and Browning. No other calling was so strongly represented as actors and dramatists. The rest were mostly occupied with art or literature, there being only two men of science, and no inventors. This last is a little surprising. It had seemed possible that American inventiveness might have been traceable to the copious American miscegenation, that country being now "the jakes of Europe," as England, with doubtful correctness, was called by Defoe.

How does Mixture of Race Originate Talent?

Several speculations are possible as to how the mixture of race originates talent. The simplest supposition, perhaps, is that the mere cross is without influence, persons of ability being more likely than others to travel and meet and marry foreigners, their offspring inheriting their talent. It may be so. The comparative lack of high grade talent (except, as already stated, inventiveness) in America seems to corroborate this view, for emigrants nowadays are not persons of eminent ability. Peter the Great took his Deptford paramour home with him and begat the elder Cozens, known widely as a painter in water-colours. The elder begat the younger Cozens, also a painter, whose works Constable described as being "all poetry." But why painting talent? We do not know that either Peter or the mother had any ability that way. We do know that Peter had other ability. Also that he showed atavistic traits—for instance, primitive savage callousness notable even in an absolute monarch of an uncivilised seventeenth-century people. Those of strong nerves may read how he conducted a mistress of his, a noblewoman, as far as the arms of the executioner, slipped round to the front for the final spectacle, picked up the head,

demonstrated rather competently—he was always interested in anatomy—to his courtiers the musculature surrounding the severed vertebra, turned it round, lightly kissed the lips, put it down again, and went off upon his business. This may suggest remotely another explanation. The crossing of breeds was shown by Darwin to lead to reversion or atavism, and atavistic traits of various kinds are common accompaniments of artistic talent.

Again, first crosses in domestic stock do seem to result in hardiness and good constitution, as in the mule or in poultry; mongrel dogs, too, are often more sagacious than pure-breds. Besides the instance given, many others exist of pugilists of mixed race: Jewish half-breeds, gypsy half-breeds, are frequent in the history of the ring. The many professional golfers from the Channel Islands may be a further example of physical ability caused by miscegenation, this territory having been alternately French and English for some centuries.

The Dumas Family.

In face of the history of the Dumas family it is hard to rule out the mere blending of race as the prime cause. Here miscegenation seems all-important, producing talent, indeed genius, out of nothing. An undistinguished French aristocrat meets an undistinguished Hayti negress wench. Their child is a prodigy of physical courage, development, and prowess. A noted cavalry leader, he can gallop at a grenadier, pluck him from the ground, and throw him across his saddle-bow. With other environment, say poverty in present-day America, this "Horatius Cocles of the Tyrol" would have been one of the half-breed boxers, who, although mostly Roumanian or Mexican or Scandinavian, for some reason call themselves by a true blue Anglo-Saxon name. Horatius's son, by an undistinguished woman, is Dumas *père*, the best story-teller pure and simple in the world. His son, again, by another out-cross, a mere Belgian milliner, is Dumas *fils*, the best playwright of latter-day France (in both note again the association with the stage).

Generalisations.

On this pedigree, certainly a slender foundation, it is possible to construct a theory of the origin of miscegenate talent. That, to begin with, the lowest form mostly results, mere physical aptitude, or histrionic ability, the lowest form of art—the production of histrionic capacity being how miscegenation helps up so the list of distinguished women, because acting is the only art in which women quite equal men. Then sometimes the original physical or histrionic talent may transmute in the succeeding generation into psychical or higher psychical, a professional cricketer begetting a novelist, an actor begetting a Wagner. But these generalisations grow dangerously top-heavy. The subject, not in the line of present-day thought, is likely to attract much interest before, say, the end of the century. Its Darwin may be some unorthodox scholar-biologist, roaming happily, his life through, from *Bibliothek* to *Bibliothek*.

I am, Sir, yours faithfully,

August 4th, 1919 CADUCEUS.

THE POSITION AND PAYMENT OF THE PENSIONS BOARDS.

To the Editor of THE LANCET.

SIR,—Dr. Lauriston E. Shaw propounds a scheme to relieve the temporary financial embarrassment of "partial" pensioners who break down. He does not know, it seems, that these cases are already provided for admirably or that the Medical Services Branch of the Ministry has given birth to a body of experts in assessment whose work is far from likely to bring blame upon our profession, as he suggests. A little practical knowledge would convince him that it is these experts rather than the well-cared-for pensioners who stand in need of sympathetic advocacy. On my board the senior members (engaged and paid by the session) hold responsible posts requiring daily attendance, special knowledge, and some administrative ability. Officially part-time, we are actually whole-time members, and yet if we are all ill or there is a bank or peace holiday our pay ceases. We have protested more than once, claiming pay proportionate to the nature and value of our work and to the cost of living, with security of tenure and right to a holiday. We have been told—our claim receives sympathy—the value of our work is recognised; if we will kindly carry on something may be done some day, nobody is to blame except the Treasury. Meanwhile, by way of humour, perhaps, batches of men paid more than ourselves and on the terms we ask, are sent to be trained by us for similar work in the provinces. We remain at our posts as much from interest and pride in our board—a model of organisation—as from loyalty to our president, to whom it owes its unique value for the pensioner and taxpayer. But we feel that we are entitled to relief from an unjustifiable financial anxiety—a relief that is essential if our work is to be continued at its present level of efficiency.

Your admirable leading article of August 2nd points out that the common policy of the profession is to serve humanity but carries a right to remuneration calculated to secure good service. The bare fact is that we are denied a living wage, and are suffering in consequence. The outlook is alarming. Is it the desire of the Treasury to reduce our families to the standard of living which the Ministry of Health has been set up to abolish? Are we to be a precedent upon which our profession will be made to suffer in the future? We should welcome investigation by any body standing for the ideals of our profession. I enclose my card with the name and address of my board for your use should any such body propose to accept the invitation, and would appeal especially to the medical Members of Parliament to assist us to prevent circumstances and the spreading spirit of discontent from forcing us unwillingly in a wrong direction.

I am, Sir, yours faithfully,

August 10th, 1919. MEDICO.

THE INCIDENCE OF TUBERCULOSIS AMONGST ASYLUM PATIENTS.

To the Editor of THE LANCET.

SIR,—The figures and conclusions given by Dr. F. A. Elkins and Dr. Hyslop Thomson in their valuable paper in your issue of August 9th will not surprise those acquainted with an essay on the frequency, causation, prevention, and treatment of phthisis pulmonalis in asylums for the insane, which was printed in the *Journal of Mental Science* for October, 1899. In this paper, however, any special liability of the insane to tuberculosis, apart from hereditary and environmental conditions, was ascribed rather to the shallowness and infrequency of the respiratory movements than to lowered tissue resistance. The conclusions reached in this essay were in 1901 entirely and handsomely endorsed by the report of a special commission of the Medico-Psychological Association, though the findings of this commission perhaps received somewhat less than their due meed owing to the fact that certain tables drawn up by the commissioners were afterwards shown to be not free from statistical error.

But no statistical or other error was ever shown to have had place in the original essay which provoked the appointment of the commission, and Dr. Elkins and Dr. Thomson now, by implication, have not only vindicated its conclusions but drawn attention to the consequences of neglect of its lessons. War has been responsible for much, but there is no reason why we should not now recognise that which was pointed out in 1899—namely, that "in the majority of cases in which phthisis leads to a fatal issue the disease is acquired in the asylum," and that aggregation, lack of ventilation, overcrowding, and a diet poor in fats, are each and all in measure responsible for the deplorable results.

I am, Sir, yours faithfully,

London, W., August 10th, 1919. F. G. C.

Lieutenant-Colonel W. B. Edwards, C.B.E., R.A.M.C.; Lieutenant-Colonel J. E. H. Davies, D.S.O., R.A.M.C.; Lieutenant-Colonel D. Hepburn, C.M.G., R.A.M.C. (T.); and Colonel Sir Charles A. Ballance, K.C.M.G., C.B., M.V.O., A.M.S., have been appointed Knights of Grace of the Order of the Hospital of St. John of Jerusalem in England.

DEATH FROM STATUS LYMPHATICUS.—At an inquest held by Mr. Wynne Baxter at Stepney on August 5th on the body of Eric Richardson, aged 3 years, who died while under an anæsthetic in the Poplar Hospital, it was stated that death was due to the existence of status lymphaticus. The coroner, having pointed out to the jury that the existence of this condition was not possible to discover before the administration of the anæsthetic, a verdict of "Death from misadventure" was returned.

The Services.

THE HONOURS LIST.

The following "statements of services" are announced for the awards recorded in THE LANCET of March 8th, 1919, p. 398. All are members of the R.A.M.C. except where otherwise stated:—

Bar to the Distinguished Service Order.

Capt. (acting Lieut.-Col.) **JAMES HENRY FLETCHER, D.S.O., M.C.**, comdg. 36th Fld. Amb.—For most conspicuous gallantry and devotion to duty near Mametz, on August 26th, 1918, when in command of bearers. With another officer he crawled out under heavy machine-gun fire into "No Man's Land," dragged back two wounded bearers to a more sheltered spot, and after dressing them crawled back for assistance, organised two squads of bearers and brought the wounded men in under heavy fire; also two more wounded men found lying out. He set a splendid example to all serving under him.

Maj. (Temp. Lieut.-Col.) **FRANCIS CORNELIUS SAMPSON, D.S.O.**, 91st Fld. Amb.—For exemplary devotion to duty on the night of Oct. 3 d/4th, 1918, at Le Baraque (north of St. Quentin) when this area was heavily bombed. This officer, regardless of personal danger, by his initiative and personal influence organised and accompanied relief parties and was instrumental in the rapid evacuation of the wounded. The bombing was very severe and the casualties heavy, there being 13 amongst the R.A.M.C. bearers alone; the actual number of killed exceeded 40.

Distinguished Service Order.

Capt. **PATRICK AUGUSTINE ARDAGH, M.C.**, New Zealand M.C., attd. 1st Bn. Auck. R.—For conspicuous gallantry and devotion to duty during an attack east of Masnieres. Being forced to place his dressing station in a spot constantly shelled by the enemy for 36 hours, he continued to dress wounded while shells fell on the station. He attended, not only his own battalion wounded, but men of three other battalions, and worked continuously without sleep all the time. He displayed high courage and resource, and was the means of saving many lives.

Temp. Major **CHARLES FRASER KNIGHT**, 133rd Fld. Amb.—For conspicuous gallantry and devotion to duty in personally supervising the collection of wounded and visiting forward posts regularly under heavy shell fire. It was largely due to his energy and disregard of danger that the large number of wounded in his sector were successfully cleared. This was during the operation against the Hindenburg Line, east of Ronssoy, on Sept. 27th, 28th, and 29th, 1918.

Major **LEONARD MAY, M.C.**, Aust. A.M.C., attd. 11th Bn. Aust. Infy.—During the attack near Villeret on Sept. 18th, 1918, he displayed great gallantry and devotion to duty whilst attending to the wounded. In consequence of his excellent organisation for clearing the wounded he was able to keep in touch with the advance, constantly moving his aid-post forward with the barrage, and maintaining liaison with the attacking companies throughout. He showed great disregard of danger under heavy artillery and machine-gun fire, and by his skill saved many lives.

Lieut.-Col. **STANLEY PAULIN**, 11th Fld. Amb., Can. A.M.C.—He was in charge of the evacuation of the brigade wounded in the operations about Cambrai. For the five days of that battle he worked day and night with very little rest. He was always leading and directing his men, and by his splendid example was responsible for the wonderful work done by those under him. His work under heavy shell and machine-gun fire was admirable.

Second Bar to the Military Cross.

Temp. Capt. **GEORGE OLIVER FAIRCLOUGH ALLEY, M.C.**, attd. 2nd Bn. R. Ir. Regt.—For conspicuous courage, energy, and initiative during the operations on Oct. 8th, 1918, in front of Niergnies. He followed up the battalion in the attack, dressing and evacuating wounded under heavy shelling, eventually establishing his aid-post right forward in a section of trench in the rear of the front line. Here he dressed and evacuated wounded, not only of his own battalion and brigade, but of battalions operating on the right and left flanks. Throughout the day he behaved splendidly, and by his fine devotion to duty saved many lives. (M.C. gazetted June 4th, 1917.)

Lieut. (temp. Capt.) **WILLIAM JOHN KNIGHT, M.C.**, attd. 89th Fld. Amb.—During the operations east of Ypres from Sept. 28th to Oct. 3rd, 1918, he was in charge of the stretcher-bearers attached to a brigade. He led his bearers in the rear of the attacking infantry, dressing the wounded as they fell, and seeing that every case was carried away from the battlefield. During the whole of the advance he showed an utter contempt for danger, dressing the wounded under shell, machine gun, and rifle fire. Later, when the advance came to a standstill, he established touch with all the regimental medical officers and personally conducted the evacuation of wounded from the R.A.P.'s. On many occasions he went forward with stretcher squads to bring back wounded to the R.A.P.'s. He dislayed great gallantry throughout and did admirable work.

Temp. Capt. (acting Major) **MAURICE ALOYSIUS POWER, M.C.**, attd. 148th Fld. Amb.—For conspicuous gallantry and devotion to duty whilst in charge of bearers during the operations on Niergnies on Oct. 8th, 1918. He personally followed the attacking troops to the final objective, establishing bearer relay posts en route, all the while utterly regardless of personal danger, though exposed to heavy enemy shell fire. His skilful organisation of the evacuation of wounded, and his maintenance of touch with all battalion medical officers, ensured the speedy evacuation of casualties. He set a splendid example to all ranks under his command.

Bar to the Military Cross.

Capt. (acting Major) **JOHN BERNARD CAVENAGH, M.C.**, attd. 113th Fld. Amb.—On Oct. 1st, 1918, when the advanced dressing station, Cambrai, was shelled, he went out to see about his men and ordered them under cover quite regardless of his own safety. On this occasion he was slightly wounded, but made no mention of it. Again, during the period from Oct. 11th-15th, when his advanced dressing station at Douvrin was being shelled, he displayed great coolness and courage. Following on this, while advanced dressing stations were in turn established at Berclau, Provin, Camphin, Les-Croquet, Templeuve, Bachy, Rumes, and Faintignies, he displayed great initiative and daring in keeping in close touch with the infantry. It was chiefly due to his sound judgment and coolness during the most trying circumstances that all the wounded and sick were so successfully evacuated.

Temp. Capt. **FREDERICK ORLANDO CLARKE, M.C.**, attd. 149th Fld. Amb.—For great gallantry and devotion to duty. During the operations against the village of Niergnies on Oct. 8th, 1918, when his aid-post was established in a dug-out at the Slag Heap, he observed two men lying out in the open about 50 yards off. Though a heavy bombardment at the time was on, he at once called for volunteers and, regardless of his own safety, went out and dressed them, and helped to carry them in. During this time one of the men was killed. It was undoubtedly owing to the gallant conduct of this officer that the man's life was saved.

Temp. Capt. **CLAUDE NORMAN COAD, M.C.**, 74th Fld. Amb.—For great gallantry and devotion to duty when in charge of bearers during heavy fighting on Oct. 11th between Avesnes and St. Aubert. It was due to his fine personal example and total disregard of danger that over 400 casualties were evacuated on that day. He carried on his work often in front of the forward posts under heavy artillery and machine-gun fire until all the casualties had been brought back.

Capt. (acting Major) **THOMAS FREDERICK CORKILL, M.C.**, attd. 139th Fld. Amb.—While acting as officer in charge of forward bearers during the operations from Sept. 29th to Oct. 3rd, 1918, south-east of Ypres, he not only showed great resource in dealing with difficult evacuation to advanced dressing station, but a total disregard of danger. He personally frequently visited all posts at all times, both night and day, with most untiring energy and courage.

Temp. Capt. (acting Major) **JOHN EDGAR DAVIES, M.C.**, 131st Fld. Amb.—For conspicuous gallantry and devotion to duty at Englefontaine on Oct. 28th, 1918. Hearing that there were over 1000 civilians in the captured town, he volunteered to go into it, interview the Mayor, and make the necessary arrangements for the distribution of smoke helmets. He entered the town under heavy bombardment and made his way to the cellar occupied by the Mayor through streets swept by enemy machine-gun fire. Several casualties occurred on the way up to a support battalion, and these he attended to and removed to safety.

Capt. **FRANKLIN FLETCHER DUNHAM, M.C.**, Can. A.M.C., attd. No. 5 Fld. Amb.—During operations about Neuville Vitasse, August 26th, 27th, and 28th, 1918, for conspicuous gallantry and devotion to duty. He organised stretcher parties under heavy shell fire, and located and dressed many wounded. On the 28th the stretcher-bearers under him moved practically with the infantry, and he personally directed the clearing of wounded from "No Man's Land" in daylight, under heavy machine-gun fire. His initiative and coolness were the means of saving many lives.

Capt. (acting Major) **FREDERICK GAMM, M.C.**, attd. 2/3rd (Home Counties) Fld. Amb., T.F.—During the attacks and counter-attacks near Pelziere from Sept. 22nd to 24th, 1918, when it was found impossible to obtain in the village a suitable spot for an advanced dressing station, he took up an ambulance car and used it as a dressing-room, working under constant shell fire all the time. His boldness and devotion to duty undoubtedly resulted in the saving of many lives and the mitigation of much suffering.

Capt. (acting Major) **WILLIAM CLAVERING HARTGILL, M.C.**, 55th Fld. Amb.—For conspicuous gallantry and devotion to duty when supervising the evacuation of brigade casualties during the attack on Ronssoy, Sept. 18th, 1918. He early established his various posts and went forward and assisted in clearing wounded of his own and other brigades under heavy machine-gun and shell fire. He worked unceasingly, and it was greatly owing to the coördination of the arrangements and his personal supervision that casualties were cleared in a markedly efficient and speedy manner. Throughout he has done fine work.

Capt. (temp. Major) **ROBERT ALEXANDER HEPPLE, M.C.**, attd. 28th Fld. Amb.—For conspicuous gallantry and devotion to duty during the operations at Roulers, Menin Road, and Ledeghem, Sept. 28th to Oct. 5th, 1918. As officer in charge of bearers he worked incessantly day and night, personally keeping in touch with the battalions in spite of shell and machine-gun fire; he never once lost touch with the regimental medical officers, evacuating the wounded with the utmost rapidity, thereby saving numerous lives.

Temp. Capt. (acting Major) **BENJAMIN KNOWLES, M.C.**, attd. 88th Fld. Amb., T.F.—For conspicuous gallantry and initiative in charge of stretcher-bearers during operations east of Ypres from Sept. 28th to Oct. 3rd, 1918. He led his stretcher bearers following a barrage during the attack and organised relays for his men along the road of evacuation. Later he visited regimental aid-posts, often under heavy fire, and several times took up ambulance cars to casualties, carrying them away under fire. For six whole days he superintended the evacuation of wounded from the forward areas, and it was due to his great energy and disregard of personal danger that the wounded were evacuated without a hitch.

Temp. Capt. **ALEXANDER CAMPBELL WHITE KNOX, M.C.**, attd. 2nd Bn. R. Suss. R.—For conspicuous gallantry and devotion to duty throughout the operations north and south of the river d'Omignon from Sept. 18th to 24th, 1918. As medical officer of the battalion he organised and supervised the evacuation of the wounded in the most perfect manner despite shell fire and gas. Besides superintending the work at the regimental aid-post he personally supervised the work of the stretcher bearers with the leading waves of the assaulting troops. Owing to his energy and personal supervision every wounded man was attended to and evacuated without delay. He did fine work.

Temp. Capt. (acting Major) **HAROLD DUNMORE LANE, M.C.**, attd. 1/1st N. Mid. Fld. Amb. (T.F.).—For conspicuous gallantry and devotion to duty. On Oct. 3rd, 1918, during the attack on Ramicourt and Wiancourt he, who had already done magnificent work during the capture of Bellenglise on Sept. 29th, 1918, and since that date had worked unceasingly under heavy fire, pushed forward through the enemy's barrage, and, although wounded, continued to search for and dress wounded under heavy shell and machine gun fire. By his absolute disregard of danger he set a splendid example to the men serving under him.

Capt. **JOHN SHAW MACKAY, M.C.**, 12th Fld. Amb., Aust. A.M.C.—For conspicuous gallantry and devotion to duty on Sept. 18th, 1918, south of Le Verguier. He moved forward with his bearers closely in rear of advancing battalions and under heavy machine-gun and shell fire, and by absolute disregard of his own personal safety

was able to keep in close contact with brigade R.M.O.'s. By this action the wounded were evacuated in the quickest possible manner, all congestion at regimental aid-posts was prevented, and undoubtedly many lives were saved.

Temp. Capt. JAMES DAVID MACKINNON, M.C., attd. 4th Bn. Liverpool R.—During the operations on Sept. 29th and Oct. 10th/11th, 1918, at Villers Guislain and Le Cateau, he displayed consistent and conspicuous gallantry in attending to wounded under heavy fire, and saved many lives. His example of coolness and devotion to duty was very fine.

Capt. (acting Major) WILLIAM ARCHIBALD MILLER, D.S.O., M.C., attd. No. 6 Fld. Amb.—For conspicuous gallantry and devotion to duty from Sept. 27th to Sept. 29th, 1918, when in charge of stretcher bearers during the advance from the Canal du Nord to the Canal de St. Quentin. He worked for three days without rest, and repeatedly led his stretcher bearers to the front line, exposing himself to direct fire from enemy machine-gun posts. Especially on Sept. 28th, he led his bearers across the canal in close touch with the infantry, and brought back wounded through intense machine-gun and shell barrage. By his fine behaviour he saved the lives of many men.

Capt. LAUREL COLE PALMER, M.C., 13th Fld. Amb., Can. A.M.C.—In the operations before Cambrai he was in charge of stretcher-bearer squads from Sept. 27th to Sept. 30th, 1918. During this period he had absolutely no rest day or night, and was constantly under heavy shell fire; and on the 28th he personally brought up field ambulance squads, and carried out the wounded from in front of the front line under heavy shell and machine-gun fire. His untiring energy and disregard of personal danger were admirable.

Capt. JOSEPH GREGOR SHAW, M.C., 12th Fld. Amb., Can. A.M.C.—During operations near Cambrai from Sept 26th to Oct. 1st, 1918, he was in charge of a party of stretcher bearers clearing the 12th Canadian Infantry Brigade. He went for four days practically without sleep, during which time he was constantly superintending clearing operations in the vicinity of the regimental aid-posts. After two days, his senior officer having been gassed, the total responsibility devolved upon him. During this time, while constantly exposed to shell and machine-gun fire, his conduct was splendid, and he was the means of saving the lives of many wounded.

Capt. (acting Major) JAMES CALVERT SPENCE, M.C., attached 34th Fld. Amb.—For conspicuous gallantry and devotion to duty while in command of a bearer division, during the attack on Olsy-le-Verger and the subsequent operations from Sept. 28th to Oct. 2nd, 1918. In addition to handling his bearers with marked skill and initiative, he reconnoitred and selected sites for regimental aid-posts under heavy fire. Throughout the operations he showed untiring energy and complete disregard of danger. His fine leading of bearers on several occasions through heavy barrages enabled the wounded to be rapidly cleared, and undoubtedly resulted in the saving of many lives.

Capt. DONALD GEORGE KENNEDY TURNBULL, M.C., 11th Fld. Amb., Can. A.M.C.—During the recent operations before Cambrai, Sept. 29th, 1918, it was reported that there were still a great many wounded out in front of the regimental aid-posts of another brigade. He at once proceeded up the line with all available bearers, and under heavy fire investigated the conditions as to wounded. He got them all out so that none were left during the night of Sept. 29/30th, thus assisting materially in preventing deaths from exposure.

The Military Cross.

Temp. Capt. (acting Major) JOHN RICHARD PERCY ALLIN, 90th Fld. Amb.—For conspicuous gallantry and devotion to duty in charge of bearers on Sept. 29th, 1918, and following days. On the 29th, during the advance, he made his way through Lehaucourt to Le Tronquay despite severe shell and machine-gun fire. He promptly organised the evacuation of the wounded, and by his fine example and energy secured the rapid evacuation of over 250 casualties.

Capt. ALAN FENTON ARGUE, Can. A.M.C., attd. 87th Can. Bn., Quebec R.—For conspicuous gallantry and devotion to duty, Sept. 2nd/3rd, 1918, at the Dury-Arras sector. During the attack he accompanied the battalion during its advance under very heavy fire, and established his first-aid post in a trench close to the front line reached by the battalion, and continuously during the day and night worked without any rest and under constant fire. Later, he went to the assistance of a wounded officer under heavy shell fire, dressed his wounds, and remained with him until he died in his arms. Throughout he behaved admirably.

Temp. Capt. (acting Major) BASIL WILLIAM ARMSTRONG, attd. 100th Fld. Amb.—For conspicuous gallantry and devotion to duty. During the fighting around Forenville and Seranvillers on Oct. 8th, 1918, he was in charge of the bearers clearing casualties of an infantry brigade. He constantly visited all the regimental aid-posts, having to pass along roads and tracks subjected to very heavy machine-gun fire throughout the whole day. All his work was done in the open, and by his energy, disregard of danger, and skilful organisation he succeeded in evacuating all the wounded in a very short time.

Capt. FREDERICK GRANT BANTING, 13th Fld. Amb., Can. A.M.C.—Near Haynecourt on Sept. 28th, 1918, when the medical officer of the 46th Canadian battalion was wounded, he immediately proceeded forward through intense shell fire to reach the battalion. Several of his men were wounded, and he, neglecting his own safety, stopped to attend to them. While doing this he was wounded himself and was sent out notwithstanding his plea to be left at the front. His energy and pluck were of a very high order.

Capt. JAMES HAROLD BLAIR, C.A.M.C., attd. 72nd Bn. Brit. Col. R.—For conspicuous gallantry and devotion to duty during the Bourlon Wood operations before Cambrai from Sept. 27th to Oct. 1st, 1918. During the attack on Sept. 27th he rushed ahead under heavy fire and rendered immediate medical attention to all wounded in the vicinity. During the attack on the 29th he followed the attacking troops closely and dressed the wounded as he went forward, and formed the enemy prisoners into stretcher parties. Immediately after the town of Sancourt was captured he established a regimental aid-post there and continued to work under heavy fire. His work throughout was of the highest order.

Capt. EDWIN JOHN BRADLEY, attd. 13rd (N. Mid.) Fld. Amb., T.F.—He was in charge of the bearers during the attack on the St. Quentin Canal on Sept 29th, 1918, and displayed great gallantry and initiative. He went forward and sought a position for an advanced dressing station in Bellenglise when it was being heavily shelled by the enemy, and finally organised collecting and relay posts on a route farther north. His dispositions were most skilful and the rapid evacuation of the wounded was mainly due to the exertions of this officer.

Capt. MILES GILLESPIE BROWN, Can. A.M.C., attd. 85th Can. Bn. Nova Scotia R.—For conspicuous gallantry and devotion to duty during the Bourlon Wood operations before Cambrai On Sept. 27th, 1918, he advanced with the attacking wave from the assembly position, and attended wounded in the open under constant machine-gun and shell fire. He established his regimental aid-post in an open trench, no other place being available. Later, after his assistant was killed beside him and his sergeant wounded, he continued his work with absolute coolness and outstanding devotion to duty. He behaved splendidly throughout and saved many lives.

Capt. EDWIN THOMAS CATO, Aust. A.M.C., attd. 1st Bn. Aust. Infy.—In the operations near Hargicourt from Sept. 18th–21st, 1918, he showed untiring energy and devotion to duty in his care of the wounded, particularly on Sept. 21st, when in order to give early attention he established his aid-post in an open trench which was under shell fire and moved about the area continually, dressing wounded in shell holes and open country. By his disregard for personal safety and his cheerful confidence he set a splendid example to all.

Capt. HERBERT TROUGHTON CHATFIELD, attd. No. 6 Fld. Amb.—For conspicuous gallantry and devotion to duty from Sept. 27th to Sept. 29th, 1918, when in charge of stretcher-bearers. He frequently led his parties through machine-gun and shell fire to bring in wounded. He succeeded in keeping in close touch with the infantry throughout the advance to and the crossing of the St. Quentin Canal near Noyelles. By his fine conduct and example he was instrumental in saving many lives.

Temp. Capt THOMAS CLAPPERTON, 141st Fld. Amb.—For conspicuous gallantry and devotion to duty during the attack on the Hindenburg Line on Sept. 29th, 1918. Throughout the day he repeatedly conducted bearers to the most exposed parts of the line to search for casualties. Though his advanced bearer post at Berthaucourt was heavily shelled he succeeded by his promptitude and energy in getting his wounded away without further casualties. His fine work was the means of saving many lives.

Capt. (acting Major) HUBERT ROY DIVE, 1/2nd Mtd. Bde., Fld. Amb., attd. 230th Fld. Amb.—On Sept. 21st, 1918, at Templeax le Guerard, when in charge of evacuation of casualties from the front line, he worked incessantly without rest under intense shell fire, exposing himself in the most fearless manner when bringing in casualties. He showed a very fine example of devotion to duty, and the successful evacuation was entirely due to his personal gallantry and initiative He has been superintending the evacuation from the front line continuously since Sept. 2nd, and during all this period has shown the greatest zeal and resource.

Temp. Capt. ROBERT DONALD, attd. 35th Fld. Amb.—For conspicuous gallantry and devotion to duty on Sept. 27th, 1918, during the advance on Epinoy. He dressed cases in the open all day under fire, and established a chain of aid-posts as the infantry advanced. It was solely due to his unflagging zeal, his initiative and absolute disregard for personal safety, that a most difficult front-line evacuation was carried out with the utmost rapidity.

Capt. LEWIS HAYES FRASER, Can. A.M.C., attd. R. Can. Horse Arty.—On Oct. 10th, 1918, near Le Cateau, when a battery commander was reported badly wounded at the observation post, this officer went forward some 1500 yards through heavy fire to attend him He arrived at the observation post just after the enemy barrage came down on it. Having attended to the battery commander he went out of the trench and crawled about under the heavy barrage for nearly an hour attending to wounded infantry. He showed great gallantry and devotion to duty.

Temp. Capt. WILLIAM BALFOUR GOURLAY (N. Russia).—Throughout the period Oct. 7th–15th, 1918, he showed exceptional devotion to duty in the care of the sick and wounded in the village of Borok, under frequent shell fire and several infantry attacks. His hospital at Borok had twice to be moved owing to fires caused by shelling; and though worn out by want of sleep and hard work he attended to the evacuation of the wounded when the troops moved back from the village, marching with them for a long distance and helping to ease them over bad roads under difficult circumstances. He set a fine example throughout of unselfish endurance in the performance of his duties.

Temp. Capt. NORMAN FRANKISH GRAHAM, attd. 6th Bn. Lond. R.—Near Maricourt, during the operations of August 26th, 27th, 28th, and 31st 1918, this officer showed the greatest courage and devotion to duty. On three occasions, when the battalion to which he was attached moved forward, he immediately followed behind the battalion and established his regimental aid-post close up to the line, tending and superintending the collection of wounded under very heavy shell fire. He so organised the stretcher-bearer parties, largely using prisoners for this task, that the wounded were evacuated with a minimum of delay and discomfort. He was twice slightly wounded but carried on.

Capt. GERALD WALLACE GRANT, 4th Fld. Amb., Can. A.M.C.—For conspicuous gallantry and devotion to duty near Vis-en Artois on August 27th/28th, 1918. He was in charge of 15 squads of bearers, and throughout the whole operations superintended the clearing of casualties under almost continuous fire from the area allotted to him. On the 28th he led his squads in advance of the infantry position, and under machine-gun fire succeeded in removing from shell holes several badly wounded men to the collecting posts, whence they could be evacuated. He set a splendid example to those under him.

Temp. Capt. RICHARD PERROTT HADDEN, 103rd Fld. Amb., attd. 152nd Bde., R.F.A.—For conspicuous gallantry and devotion to duty when some transport came under heavy howitzer fire near Tenbrielen on Oct. 8th, 1918. He went straight to the place through heavy shelling to attend to a wounded man, and by his prompt action and disregard of danger probably saved the man's life.

Capt. ALBERT ROBERT HAGERMAN, Can. A.M.C., attd. 78th Can. Bn., Manitoba R.—For conspicuous gallantry and devotion to duty during the Bourlon Wood operations before Cambrai. On Sept. 27th, 1918, he followed close behind the attacking infantry and established a regimental aid-post in the open under heavy shelling and dressed wounded under heavy machine-gun fire. On Sept. 29th he established a dressing station in a forward trench, and for two days he worked unceasingly under shell fire in this position, dressing hundreds of wounded. He did admirable work.

Capt. JAMES MANN HENDERSON, Aust. A.M.C., attd. 12th Bn. Aust. Infy.—During the attack near Jeancourt on Sept. 18th, 1918, he established his regimental aid-post immediately in rear of the jumping-off place and attended to the wounded of his and of a supporting battalion under heavy shell fire in an exposed position. As the attack progressed he moved forward and treated large numbers of casualties in the open. By his energy, disregard of danger, and clever organisation, he relieved a great deal of suffering, and throughout set a splendid example to those under him.

Temp. Capt. ALEXANDER HUNTER, attd. 63rd Divl. Eng.—During the operations on Niergnies on Oct. 8th, 1918, whilst attached to the advanced dressing station, when the advanced dressing station was being heavily shelled he went out to attend to some wounded. On his way he was knocked down by the explosion of a gas shell, but although severely burned he continued to attend to the wounded, displaying a remarkable coolness and utter disregard to personal danger. He refused to be evacuated and remained on duty until relief.

Temp. Capt. WILLIAM BOYD JACK, attd. 5th Bn. Leic. R., T.F.—For conspicuous gallantry and devotion to duty during the attack on Pontruet on the morning of Sept. 24th, 1918. His regimental aid-post was situated in a valley which was shelled consistently with gas and high-explosive shell. He had no dug-out and his work was entirely in the open. From 5 A.M. till 3 A.M. the following morning he worked unceasingly, entirely regardless of danger, and his fine conduct saved many lives.

Temp. Capt. MATTHEW JAMES JOHNSTON.—During an air raid at St. Omer on the evening of May 30th, 1918, four men had been buried at the Caserne d'Albret in the debris of part of the building which had been destroyed by bombs. He arrived immediately with an ambulance, and, in spite of the fact that the enemy planes were still overhead, set to work at once to effect a rescue. This had to be done in the dark, but the men were got out alive, and only one of them subsequently died. Other bombs were dropped near by whilst the work of rescue by this officer was still proceeding. On this, as on many other similar occasions, the conduct of this officer was very gallant.

Capt. CHARLES TERRELL LEWIS, Can. A.M.C., attd. 10th Bde. Can. F.A.—For gallantry and devotion to duty. On August 29th, 1918, during the operations along the Arras-Cambrai road, two gun pits were set on fire by hostile shells. An ammunition dump was exploded and several men wounded. He hastened to the spot and dressed the wounded and removed them to a dressing station. Throughout the whole operations he was untiring in his efforts to afford immediate medical attention to the wounded, many times under severe fire.

Temp. Capt. CHARLES WILLIAM BERRY LITTLEJOHN, 140th Fld. Amb.—For great gallantry and initiative in the operations south-east of Ypres from Sept. 28th to Oct. 4th, 1918. During this period he was in command of forward stretcher bearers, and it was solely due to his energy and dash that close touch was kept with battalions and their wounded promptly evacuated. He exposed himself freely to sniping, machine-gun and shell fire to get at the wounded of not only his own brigade but of other divisions, and by his fine conduct saved many lives.

Temp. Capt. ALFRED MASON, attd. 229th Fld. Amb.—Near Moislains and Hargicourt, Sept. 2nd/25th, 1918. While in charge of the bearer division working in front of the advanced dressing station he was unceasing in his efforts on behalf of the wounded. Although his area was on many occasions subject to very severe shell fire, and although he was for some days himself ill, he succeeded through sheer gallantry and devotion to duty in maintaining touch with the regimental aid-posts continuously during the advance, thereby securing the rapid evacuation of the wounded. His work was admirable.

Capt. HARRY CLARKE MOSES, Can. A.M.C., attd. No. 5 Fld. Amb.—For conspicuous gallantry and devotion to duty in charge of the advanced post of the right sector during operations round Neuville, Vitasse, Wancourt, and Cherisy, August 26th/27th, 1918. He was exposed to frequent enemy shelling, bombing, and machine-gun fire from aeroplanes, and when a shell exploded among a number of wounded awaiting evacuation he directed the adjustment of the masks on the wounded and succeeded in protecting them from all effects of the gas.

Lieut. WILLIAM PERCIVAL NELSON, attd. 128th Bn. Lond. R.—At Rumillies, on Oct. 8th, 1918, for gallantry and devotion to duty. During a very severe bombardment of both artillery and machine guns he constantly went out to the help of the wounded, attending them with utter disregard for danger, and was the means of saving several lives and alleviating a great deal of suffering. He has at all times set a striking example by his fearlessness and devotion to duty.

Capt. JOHN ARCHIBALD NICHOLSON, attd. 1st Bn. Sea. Highrs. (Egypt).—For most gallant conduct and devotion to duty near Tabsor on Sept. 20th, 1918. He moved about in the open under a heavy machine-gun fire to dress the wounded and bring them to a place of safety. Though casualties were very heavy, he continued to perform his duties with the greatest calmness and disregard of danger. He set a very fine example of devotion to duty and showed great courage.

Capt. KENNETH CLAUD PURNELL, Aust. A.M.C., attd. 11th Bde. Aust. Fld. Arty.—For conspicuous gallantry and marked devotion to duty during the attack on the Hindenburg line, south of Vendhuile on Sept. 29th, 1918. He dressed the wounded under very heavy shell fire, and organised a stretcher party, and conducted them to the battery positions, and by his personal and untiring efforts assisted in getting them to the nearest dressing station, a distance of about 1000 yards, and still under heavy fire. Throughout the day he worked splendidly.

Capt. ALLAN MELROSE PURVES, Aust. A.M.C., attd. 2nd Tunnelg. Coy., Aust. Engrs.—On Sept. 29th, 1918, during the operations against the Hindenburg line, in the neighbourhood of Bellicourt, he formed an aid-post in a forward position. At this point the enemy put down a very heavy barrage which lasted about six hours and caused heavy casualties amongst the road party and the infantry in the vicinity. The whole of this time he attended to the wounded in the open, showing great gallantry and devotion to duty, and undoubtedly saved many lives.

Temp. Capt. EDWARD ROGERSON, attd. 2nd Bn. K.R.R.C.—For gallantry and devotion to duty east of Maissemy on Sept. 18th, 1918, and during the operations of Sept. 24th/28th. On Sept. 18th he attended to and bandaged wounded men under heavy machine-gun fire. His actions undoubtedly saved many lives. During the heavy shelling of our positions on Sept. 24th/25th he was conspicuous for his utter disregard of danger while carrying out his duties, and throughout the operations he set a splendid example to those under him.

Temp. Capt. JAMES SCOTT, attd. 12th Bn. Manch. R.—On Oct. 12th, 1918, in front of Neuvilly, under heavy and accurate shell fire out in the open, he dressed the wounded without cessation. His cool courage under fire and his speed and skill, combined with his energy in keeping the stretcher-bearers going and in working eight enemy squads, saved many lives. He worked untiringly, and showed such spirit as inspired all who came near him.

Temp. Capt. THOMAS McCALL SELLAR, attd. 1/18th Bn. Lond. R.—During the period August 28th to Sept. 6th, 1918, the battalion was continually in offensive action. Most of the stretcher-bearers became casualties. Throughout this time he worked with such untiring energy and marked gallantry that the regimental aid-post was constantly in touch with the attacking troops, and wounded were got back to the aid-post by his continually organising and leading forward small parties of bearers under heavy fire.

Capt. (acting Major) ARTHUR LEONARD SHEARWOOD, attd. 33rd Fld. Amb.—For conspicuous gallantry and devotion to duty on Sept. 27th/28th, 1918, during and after the attack on Olsy-le-Verger and Epinoy, when in charge of the evacuation of the wounded from the divisional front by motor ambulance. He worked for 36 hours unceasingly, visiting forward positions and establishing car-posts, under shell fire. His initiative and skill in carrying out these dispositions and his complete disregard for personal danger and fine example to all those under his command saved many lives and rendered the evacuation a complete success.

Capt. GEORGE ALEXANDER SMITH, Can. A.M.C., attd. 47th Can. Bn. W. Ont. R.—For conspicuous gallantry and devotion to duty during the operations in front of Cambrai from Sept. 27th/29th, 1918. He followed the battalion closely throughout the operations, showed great energy, and dressed many cases under heavy shell fire, working out in the open with practically no shelter. He set a very fine example to those under him.

Capt. CLIFFORD HALLIDAY KERR SMITH, attd. 1/4th Bn. K.O.S.B., T.F.—During the enemy attack on Mœuvres on Sept. 17th, 1918, this officer, when informed that there were many serious cases lying out requiring immediate attention, went forward in face of a very heavy artillery, rifle, and machine-gun fire and gave them his personal attention. As those urgent cases could not have been brought to the regimental aid-post in time for the necessary attention, this officer, by his prompt action and fearless devotion to duty, was undoubtedly the means of saving many lives of men in this battalion.

Capt. JOHN STIRLING, attd. H.Q. 112th Bde. R.F.A.—On August 26th, 1918, north of Maricourt, hearing that D/112th Brigade was being heavily shelled by the enemy, he immediately went to the battery and attended the wounded. Again, near Moislains, on Sept. 9th, 1918, when battalions were suffering casualties from enemy long-range guns, he went to them and attended their wounded. His gallantry and devotion to duty on numerous occasions have been most marked.

Capt. JOSEPH TOWNSEND STIRLING, 11th Fld. Amb., Can. A.M.C.—For conspicuous gallantry and devotion to duty. During the attack on Bourlon Wood on Sept. 27th, 1918, he dressed wounded in the open in the vicinity, under heavy shelling and machine-gun fire. Again, on Sept. 29th, when one of his men was killed and several others seriously wounded, he went to their assistance, got them dressed, and carried to safety.

Capt. RICHARD CHAPMAN WELDON, Can. A.M.C., attd. 2nd Can. Motor M.G. Bde.—While in action east of Arras on August 29th, 1918, at Jig-Saw Wood and Artillery Hill, he was in charge of the regimental aid-post, where he showed great gallantry and devotion to duty. The heavy and continuous shell fire made the work at the aid-post both heavy and difficult, entailing constant work for 36 hours without rest.

Temp. Capt. GEORGE BURKETT WILKINSON, 28th Fld. Amb.—On the night of Oct. 3rd/4th, 1918, at Waterdamhoek, he was in charge of advanced dressing station. Everyone had left the village on account of intense shelling. As wounded continued to come in he carried on dressing and evacuating wounded regardless of the risk he ran till the advanced dressing station was closed down. He showed great courage and devotion to duty.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. E. W. P. V. Marriott retires on retired pay.

Capt. W. C. Hartgill relinquishes the acting rank of Major.

Temp. Capt. J. McP. MacKinnon to be Lieutenant and to be temporary Captain.

Lieut. (temp. Capt.) T. C. Bowie to be Captain.

Temp. Lieut. H. C. Hinwood to be temporary Captain.

Officers relinquishing their commissions:—Temp. Lieut.-Col. J. F. Woodyatt (on ceasing to be in charge of Halifax War Hospital, and retains the rank of Lieutenant-Colonel); Temp. Hon. Lieut.-Col. W. J. Richard (on ceasing to be employed at the Merryflats War Hospital, and retains the honorary rank of Lieutenant-Colonel); Temporary Captains retaining rank of Captain: M. A. McKeever, W. P. Over, B. J. Hackett, J. A. G. Sparrow, J. N. Donnellan, J. A. N. Scott, E. E. Frazer, F. J. Wheeler, J. A. MacLeod; Temp. Lieut. C. O. Miller (retains the rank of Lieutenant).

Canadian Army Medical Corps.

Temp. Lieut.-Col. (acting Col.) T. C. D. Bedell to be temporary Colonel.

Temp. Major W. J. McAlister to be acting Lieutenant-Colonel while in command C.C.O.H., Matlock, Bath.

Temp. Majors (acting Lieut.-Cols.) R. M. Filson and E. A. Neff relinquish the acting rank of Lieutenant-Colonel.

The undermentioned temporary Captains (acting Majors) relinquishing the acting rank of Major: A. M. Yeates, J. N. Taylor, H. C. Allison, M. G. Thomson.

The undermentioned temporary Captains (acting Majors) to be temporary Majors: P. D. Saylor, H. C. Davis, D. J. Millar.

The undermentioned retire in the British Isles: Temp. Col. W. L. Watt; Temp. Lieut.-Cols. S. R. Harrison, E. L. Pope; Hon. Major I. D. Carson; Temp. Majors A. B. Walker, S. G. Ross, D. J. Cochrane, H. W. Whytock; Temp. Capts. H. C. Watson, V. D. Davidson, J. W. Dorsey, J. E. C. Henderson, M. G. Thomson, W. E. Jones, O. E. Kennedy, F. A. O'Reilly, G. W. M. Smith, T. G. Macdonald, R. G. Moffat, L. C. Reid, M. Krolik, T. Campbell, T. D. Wheeler, F. B. Sharp, R. MacKinlay, J. L. Poirier, J. W. Begg, G. B. Ferguson, D. Smith, R. F. Price, H. G. McCarthy, W. C. Lowry, M. F. D. Graham, V. K. O'Gorman, H. J. G. Geggie, B. Cohen, Temp. Hon. Capt. A. V. Whipple.

Canadian Army Dental Corps.

Temp. Major G. N. Briggs retires in the British Isles.

South African Medical Corps.

Temp. Capt. E. L. Reid relinquishes his commission and retains the rank of Captain.

TERRITORIAL FORCE.

Lieut.-Col. (acting Col.) H. Collinson relinquishes the acting rank of Colonel on vacating the appointment of Assistant Director of Medical Services.

Majors (acting Lieut.-Cols.) A. W. Moore, J. Wood, and D. H. Weir relinquish the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Capts. (acting Lieut.-Cols.) H. H. B. Cunningham, W. Brown, and F. G. Dobson relinquish the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Capt. (acting Lieut.-Col.) L. D. B. Cogan to be Assistant Director of Medical Services, and to be acting Colonel whilst so employed.

Capts. (acting Majors) F. E. Stokes, J. W. Thomson, A. L. Heiser, C. S. P. Black, J. W. McIntosh, and A. E. Ironside relinquish the acting rank of Major on ceasing to be specially employed.

Capt. H. H. B. Cunningham to be a Deputy Assistant Director of Medical Services, and to be acting Major whilst so employed.

1st London General Hospital: Lieut.-Col. Sir Anthony A. Bowlby, K.C.M.G., K.C.V.O., C.B., is retired and is granted the honorary rank of Major-General.

4th Northern General Hospital: Major (acting Lieut.-Col.) F. S. Genney relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

1st London Sanitary Company: Lieuts. J. Buckland and W. H. S. Dunn to be Captains.

1st Eastern General Hospital: Capt. P. N. B. Odgers is restored to the establishment.

3rd Western General Hospital: Capt. (acting Major) R. C. Elsworth relinquishes the acting rank of Major on ceasing to be specially employed.

ROYAL AIR FORCE.

Medical Branch.—Lieut.-Col. H. E. South (Fleet-Surgeon, R.N.) relinquishes his commission on ceasing to be employed.

Capt. (acting Major) C. J. G. Taylor and Capt. T. H. James are transferred to the unemployed list.

Dental Branch.—G. Packman is granted a temporary commission as Captain.

P. E. Bernard and R. H. More are granted temporary commissions as Lieutenants.

INDIA AND THE INDIAN MEDICAL SERVICE.

Lieut.-Col. J. Jackson, C.I.E., to be Colonel.

The King has approved the retirement of Lieut.-Col. A. H. Nott and Major D. S. A. O'Keeffe.

Lieut.-Col. J. Stevenson, C.I.E., is retiring from the appointment of Principal of the Government College, Lahore. Capt. C. E. R. Norman resigns the service. Lieut.-Col. W. Vonney, Civil Surgeon, Cawnpore, has been granted leave, and Dr. C. A. Fuller officiates as Civil Surgeon, Cawnpore, during his absence. The Secretary of State for India has appointed Mr. Nihiatan Dhar to the Indian Educational Service as Professor of Physical and Inorganic Chemistry, Muir Central College, Allahabad. Capt. R. B. Lloyd, Imperial Serologist, has been appointed Chemical Examiner to the Government of Burma.

Medical News.

THE death is announced of Dr. William Smith Greenfield, F.R.S. Edin., at the age of 73, who was Emeritus Professor of Pathology and Clinical Medicine, Edinburgh University, from 1881 to 1912.

UNIVERSITY OF LONDON.—At the Second Examination for medical degrees (Part I.) held recently the following candidates were successful:—

Francis Glen Allan, St. Thomas's Hosp.; Katharine Margaret Andrew, Newnham College; Joseph Atkin and Philip Bernard Atkinson, King's College; Grace Lily Austin, University College; Maud Kirkdale Baden-Powell, London School of Medicine for Women; Judah Samuel Benzecry, University College; William Claude Morpott Berridge, St. Thomas's Hosp.; Mark Bersinski, Middlesex Hosp.; Hilda Alice Bond and Gwendidolen Jane Brooke, University College; Grace Emily Budge, London School of Medicine for Women; Helen Bumstead, King's College; Lily Clarkson Butler and Hilda Louisa Byett, London School of Medicine for Women; Dorothy Maude Campbell-Meiklejohn and Fanny Louise Cattle, University College; Gladys Maud Clarke and Marian Bertha Coleman, London School of Medicine for Women; Arthur Basil Cooper, St. Paul's School; William Leigh Spencer Cox and Eleanor Mildred Creak, University College; Hilda Mary Cunnington, London School of Medicine for Women; Donald Vaughan Davies, St. Paul's School; Morris Denman, Middlesex Hosp.; Barbara Joan Edwards, University of Birmingham; David Glyn Mason Edwards and Alfred Claude Mitchell Elman, University College; Brenda Harks English, London School of Medicine for Women; Charles Walter Evans, University College; George Morgan Evans, University College, Cardiff; Shafik Abd-el-Malek Fam, King's College; Mary Dorothy Fletcher, University College; Louis Fogelman, Guy's Hospital; Annie Foner, University College; Mary Elizabeth Fox, London School of Medicine for Women; Emily Lorna Franklin and Labib Ghabrial, King's College; Laura Phœbe Gibbon, Lady Margaret Hall, Oxford; Cecil Percy Roderick Gibson, St. Thomas's Hosp.; Winefride Mary Gibson, Victoria Tutorial College; Horace Philip Goldsmith, University College; Dorothy Eva Gray, London School of Medicine for Women; John Griffiths, University College, Cardiff; Aaron Gullertein, London Hosp.; Margaret Constance Noel Hadley and Samuel Halperin, University College; James Rowland Hamerton, St. Bartholomew's Hosp.; Marjorie Florence Hayward and Barbara Joan Hick, London School of Medicine for Women; Norman Gray Hill, London Hosp.; Gwynedd Hugh-Jones, London School of Medicine for Women; Robert Hunt Cooke, St. Bartholomew's Hosp.; Morris Jablonsky, King's College; Douglas James Tendron Jeans, Guy's Hosp.; Harry Victor Mainwaring Jones, St. Thomas's Hosp.; Robert Owen Jones, Middlesex Hosp.; Norman Adams Jory, St. Bartholomew's Hosp.; Jean Pierre Kies, St. Thomas's Hosp.; Alfred Charles King, London Hosp.; Charlotte Anne Kingdon, London School of Medicine for Women; Isaac Kinsler, St. Bartholomew's Hosp.; Charles Henry Landau, London Hosp.; Miriam Annabella Lawson, London School of Medicine for Women; Charles Emile Marie Joseph Libert, King's College; *Edith Treliving Marshall, London School of Medicine for Women; Doris Ivy Mart, University College; Annie Pearce Martin, London School of Medicine for Women; Ysobel Maisie Howard Martin, Newnham College; Lucy Margaret Theodora Masterman and Margarethe Mautner, London School of Medicine for Women; Alan Aird Moncrieff, Middlesex Hosp.; Thomas Walter Morgan, University College, Cardiff; Richard Murchison Morris, London Hosp.; Herman Mould, University College; Ethel Murgatroyd, Newnham College; Frances Louisa Nichol, London School of Medicine for Women; Albert Boswell Nutt, University of Sheffield; Herbert Leslie Oldershaw, St. Bartholomew's Hosp.; Guan Yong Oon; University College; Beryl Palmer-Jones, University College, Cardiff; Emily Constance Noel Paterson, Newnham College; Dorothy Edith Peake, London School of Medicine for Women; Cyril Morgan Pearce, St. Bartholomew's Hosp.; Herbert John Plowright, Guy's Hosp.; Kathleen Mary Potter, University of Leeds; Violet Alice Quilley and Alysoun Hurndall Rowntree, London School of Medicine for Women; Dorothy Stuart Russell, Girton College; George Drury Shaw and Thomas Archibald Shaw, Guy's Hosp.; Elizabeth Shlounde, King's College; Walter Roworth Spurrell, Guy's Hosp.; Betty Stainer, King's College; Edith Emily Stephens, Hilda North Stoessiger, and Margaret Swete, London School of Medicine for Women; Selwyn Edward Tanner, University College, Cardiff; Robert Wise Holden Tincker, St. Bartholomew's Hosp.; Maurice Auvache Townshend, University College; John Rutherford Tree, Middlesex Hosp.; Olga Frances Tregelles, London School of Medicine for Women; Thomas Fenemore Waring, London Hosp.; Reginald Lawson Waterfield, Guy's Hosp.; Lewis John Watkins, University College, Cardiff, and private study; Constance Clara Maude Watson, King's College and Charing Cross Hosp.; Hilda Marion Weber, University College; Henry John William Jennings Westlake, Guy's Hospital; Edward Lincoln Williams, London Hosp.; and Esther Wingate and Isabelle Joan Woodhouse, London School of Medicine for Women.

* Awarded a mark of distinction.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

WAR PENSIONS (ADMINISTRATIVE PROVISIONS) BILL.

THE House went into Committee on Thursday, August 7th, on the War Pensions (Administrative Provisions) Bill.

The Right of Appeal.

On the motion "that this be the Schedule of the Bill," Mr. HOGGE complained that many of the men who were wounded in 1914-15 had not even an appeal against the assessment of the Medical Board. There was no medical referee in those days attached to the Local War Pensions Committee to which any of these men could appeal. He wanted to know if the appeal set up in Clause 8 of this Bill enabled any man who was eligible for a pension from the first date on which men were being wounded to go to this tribunal? This was an extraordinarily important point.

Sir JAMES CRAIG said it was the desire and duty of the Pensions Minister to see that the responsibility of passing men on to the Ministry of Labour rested with the medical advisers. Consequently, the desire of Mr. HOGGE was adequately met. No pensioner left the auspices of the Pensions Ministry until he was certified by their own medical staff to be absolutely fit to undertake the training which the Ministry of Labour proposed to give him. As to an appeal to a superior class of medical board, the door was by no means closed, but he could not pledge the Minister without having first consulted him.

The Committee Stage was concluded, and the Bill was reported to the House and read a third time.

HOUSE OF COMMONS.

WEDNESDAY, AUGUST 6TH.

Hospital Arrangements in India.

Colonel YATE asked the Secretary for India whether he could make any statement as to the amelioration of the hospital arrangements for the sick and wounded in the operations on the North-West Frontier of India; whether he was aware that one officers' hospital was so badly equipped that the patients had to use their shaving mugs

as drinking cups and tumblers; that no casualty lists were issued for more than a month subsequent to May 17th; and even wives were not officially informed of their husbands' deaths and were left to hear of it from other sources.—Mr. MONTAGU replied: As regards the first part of the question, I would refer my honourable and gallant friend to the very full statement which I have made in answer to another question of his [summarised in THE LANCET of last week]. The second part is covered by the request which I have already addressed to the Government of India for a report on the hospital referred to. It is not the case, so far as I am aware, that no casualty lists were published for more than a month subsequent to May 17th. Reports of casualties are communicated to the War Office as they are received by the India Office and are published by the former. Apart from publication, reports of casualties are immediately communicated by the India Office to the next-of-kin in all cases in which the names of the next-of-kin have been registered. If the honourable and gallant Member will inform me what are the cases to which he refers in the last part of his question I will have inquiry made.

Colonel YATE: I refer to the publication by the Government of India. I would ask with regard to the statement in yesterday's full statement which is referred to that the scale of equipment of Indian general hospitals has been reviewed and that arrangements for providing additional equipment are in progress does not that show that the shortage brought to light by the Mesopotamia Commission has not yet been remedied in India, and that the pernicious report of Lord Nicholson and Sir William Meyer, which caused Lord Crewe to limit the expenditure on the Indian Army to £19,500,000 is still operating, and——

The SPEAKER: The honourable and gallant Member is making an argumentative speech.

Hospital Carriers for Russia.

Lieutenant-Commander KENWORTHY asked the First Lord of the Admiralty whether he was aware of the fact that six hospital carriers had been sent to North Russia for service on the River Dwina which could not ascend that river owing to their excessive draught; whether, in consequence, the arrangements for transporting wounded might be insufficient should heavy casualties be inflicted on our forces; and whether all possible steps were being taken to send out smaller carriers for wounded with all dispatch.—Dr. MACNAMARA (Secretary to the Admiralty) replied: The six hospital carriers referred to are six paddle steamers which were fitted out temporarily owing to the unavoidable delay on passage from Mesopotamia of vessels of smaller draught. They were the shallowest draught craft available at the time, and but for the abnormally low river would have been entirely suitable for the service. I am advised that adequate craft are now available at Archangel, and should more be required others are on their way.

Public Health Research.

Mr. WATERSON asked the Prime Minister whether the Minister of Health would throw wide open the door of research to all new ideas and methods, so far as the promotion of health was concerned.—Dr. ADDISON replied: I have been asked to answer this question. It is certainly the intention of the Ministry of Health to utilise every possible means for promoting the health of the people in coöperation with the Medical Research Committee and otherwise, and including in particular the investigation of the causes of disease and the encouragement of research, with an open mind for the reception of new ideas and methods.

Medical Arrangements in Russia.

Mr. RAWLINSON asked the Secretary for War if he would state how many hospital ships were now being used for the troops in North Russia; and whether an adequate supply of doctors, nurses, and hospital requirements had now reached our troops.—Mr. CHURCHILL replied: Two hospital ships are being used to evacuate patients from the military hospitals in North Russia. An adequate supply of doctors and hospital requirements are present at both Archangel and Murmansk. Six British nurses are doing duty in the hospital at Murmansk. There are no British nurses stationed at Archangel.

Venereal Disease.

Major WARING asked the Secretary for War whether he was aware that patients undergoing treatment for venereal disease in certain military hospitals in this country were permitted to move freely in populous districts every afternoon; and would he issue instructions that these infected persons should be confined to the precincts of the hospital throughout their period of treatment.—Mr. CHURCHILL replied: Patients undergoing treatment for venereal disease in military hospitals are not permitted to move freely, as suggested in the first part of my honourable and gallant friend's question. Except under very exceptional circumstances patients who are in a condition to spread infection are not granted leave from the hospital.

Food for Patients in Sanatoriums.

Mr. GRATTAN DOYLE asked the Minister of Health whether his attention had been called to the complaints that many tuberculosis patients in sanatoriums and similar institutions under the control of local authorities still suffered from the severe régime imposed by the war and food control as to food and nourishment; and whether he would cause such inquiries and alterations to be made as would ensure to such patients every consideration and help.—Major ASTOR (Parliamentary Secretary to the Ministry of Health) replied: I am aware that complaints have been made from time to time in respect of food and other matters in sanatoriums and similar institutions, and I am now inquiring into a particular case which has just been brought to my notice. I am advised that where the official dietary scales are properly carried out they are found suitable, but if the honourable Member will give me the details of any particular place where he has information that the food is inadequate, I will gladly have it investigated and reported upon.

THURSDAY, AUGUST 7TH.

Filthy Streets and the Public Health.

Major C. W. LOWTHER asked the Minister of Health whether he was aware of the dirty condition of the streets in the neighbourhood of Paddington, and whether he would take steps to cause the streets in question to be thoroughly disinfected with a view to preventing the propagation of disease.—Major ASTOR replied: My right honourable friend has no official representations on the subject, but in view of what has otherwise come to his knowledge he is in communication with the local authority with a view to considering what steps it may be desirable to take to safeguard the health of the people.

Colonel YATE: Is the right honourable gentleman in communication with the Kensington authorities, where the situation is very serious?—Major ASTOR: Yes, my right honourable friend has been in touch with Kensington for some time, and I understand that seven vans are collecting refuse in Kensington and that there will be 20 on the streets to-morrow.

Breaches of Discipline at Warlingham Hospital.

Sir STUART COATS asked the Secretary for War whether on Peace Day it was necessary, in answer to an urgent summons, to send a detachment of troops in motor lorries, with a machine-gun, from the Guards' barracks at Caterham to suppress a serious riot at the military hospital for venereal diseases at Warlingham; and whether he was now in a position to state what steps he was taking to prevent in future the recurrence of such breaches of discipline.—Mr. CHURCHILL replied: I am informed that there has never been a riot at the military hospital at Warlingham. A number of patients were, or had been, absent without leave on the night July 18th–19th, and to prevent additional men leaving the hospital a detachment from the Guards' Depôt was sent on the morning of the 19th. No machine-gun accompanied the troops. The detachment of Guards was relieved the next day by other troops, who are still there. The breaches of discipline have been, and are being, dealt with in the ordinary course, and 20 men are now awaiting trial by district court-martial in connexion with the occurrence.

Nurses at Archangel.

Mr. JODRELL asked the Secretary for War if there were any British nurses in the port and town of Archangel; and, if so, how many, and when did they arrive.—Mr. CHURCHILL replied: There are at present no British women nurses in the port and town of Archangel. A matron and 13 sisters were, however, on duty on a hospital ship which was stationed at Archangel from Nov. 2nd till June 2nd last, when the ship returned with them to this country. The hospital ship returned to Archangel on July 7th with one matron and ten sisters and left again on the 28th with the nursing staff on board.

Small-pox and the Italian Expeditionary Force.

Mr. WATERSON asked the Secretary for War if he could state how many men who went to Italy in the spring of 1918 well vaccinated contracted small-pox.—Mr. CHURCHILL replied: Two cases of small-pox were reported as occurring among the troops of the Italian Expeditionary Force during the year 1918. One was reported in January and the other in April. I cannot say whether the latter went to Italy in the spring of 1918 nor whether the soldier was vaccinated.

Treatment for Neurasthenic Patients.

Major PRESCOTT asked the Pensions Minister whether he could make any statement as to the amelioration of the hospital arrangements for discharged sailors and soldiers suffering from neurosis and neurasthenia; whether he was aware that many of these Tottenham cases, together with those of epilepsy, were still awaiting admission into homes of recovery; whether he was aware that Mr. H. G. Cooke, a discharged soldier, of 39, Franklin-street, Tottenham, had been waiting for over five weeks to be admitted into

hospital; whether he was aware that a similar case which had been waiting for a similar period ended fatally a few days ago; and would he take immediate action to see that all outstanding cases were admitted to hospital without further delay.—Sir J. CRAIG (Parliamentary Secretary to the Ministry of Pensions) replied: This matter has engaged the serious attention of the medical officers. It is hoped that soon a central neurological institution will be established in each region, available for both in-patient and out-patient treatment. It is recognised that in a great number of neurasthenic cases in-patient treatment is not required, and in order to provide for this a number of clinics are being established in various parts of the country where expert out-patient treatment will be given. It is therefore confidently expected that very soon ample accommodation will be available for the efficient treatment of these cases. As regards the case of Mr. Cooke his admission to an institution has now been arranged. There was, unfortunately, a little delay in obtaining a vacancy in a suitable hospital. The other case quoted was complicated by the fact that the patient was also suffering from epilepsy, and it was from this disease that he died.

MONDAY, AUGUST 11TH.

Insurance Medical Benefit.

Mr. G. LOCKER-LAMPSON asked the Minister of Health if he could make any announcement about the proposed extension of medical benefit under the National Insurance (Health) Acts.—Major ASTOR (Parliamentary Secretary to the Ministry of Health) replied: The question of what changes, if any, in the existing medical benefit under the Insurance Acts will be proposed for 1920 is not yet decided. Various improvements in the conditions of service and the possible establishment of some of the additional matters that were suggested in the Estimates of 1914 have been under consideration at the Ministry and in conference with the practitioners, and will be further discussed with the new consultative councils, with the insurance committees, and with approved societies. But these matters are not yet in a sufficiently advanced state to admit of any precise statement from me to-day.

Seale-Hayne Hospital Victualling.

Mr. GEORGE LAMBERT asked the Secretary for War whether tenders had been invited for the Victualling of the Seale-Hayne Hospital, Devon; and when the promise made to evacuate this institution would be fulfilled.—Mr. CHURCHILL replied: Inquiry is being made as to the first part of my right honourable friend's question. As regard the latter part, I can add nothing at present to the letter that was sent to him on Friday last.

TUESDAY, AUGUST 12TH.

Medical Treatment at Ilford and Barking.

Sir PETER GRIGGS asked the Pensions Minister whether he was aware that notice had been given to stop the medical and surgical treatment of pensioners and discharged soldiers at the Ilford Emergency Hospital for the towns of Ilford, Barking, and district, some of these men badly requiring treatment, having had to leave their military hospitals too soon; and whether he would make arrangements for the doctors to be paid for continuing the work which they had done gratuitously in the past.—Sir J. CRAIG (Parliamentary Secretary to the Ministry of Pensions) replied: My right honourable friend is aware that the authorities of the Ilford Emergency Hospital have given notice to terminate the treatment at their hospital of pensioners and discharged soldiers at the end of next month owing to lack of accommodation. Arrangements will be made at the earliest possible date for providing the necessary and suitable treatment for discharged men in the areas mentioned.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON HOSPITAL MEDICAL COLLEGE, in the Clinical Theatre of the Hospital.

A Special Course of Instruction in the Surgical Dyspepsias will be given by Mr. A. J. Walton:—

MONDAY, August 18th.—4.30 P.M., Lecture V.:—Gastric Ulcer. Ætiology and Pathology.

FRIDAY.—4.30 P.M., Lecture VI.:—Gastric Ulcer. Symptoms, General and Special.

A Course of Clinical Lectures for Advanced Students on Intermittent Blood Infections and their Relation to Certain Common Diseases of the Kidney, Prostate, Testicle, and other Organs will be delivered by Mr. F. Kidd:—

WEDNESDAY.—4.15 P.M., Lecture III.:—Hæmatogenous Infections of the Testicles and Bladder. Clinical Course; Diagnosis; Treatment.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BARLING, SEYMOUR, C.M.G., M.S. Lond., F.R.C.S., has been appointed Honorary Surgeon to the General Hospital, Birmingham.

BERRY, W. A., M.D. (State Med.), B.S. Lond., D.P.H., Medical Officer of Health and School Medical Officer for the Heston and Isleworth Urban District Council.

COOK, W. W., M.R.C.S., L.R.C.P. Lond., one the Medical Referees under the Workmen's Compensation Act, 1906, for County Court Circuit No. 2.

DAVIES, TREVOR B., M.D., B.S. Lond., M.R.C.P. Lond., F.R.C.S. Eng., Obstetric Surgeon to Out-Patients, Queen Charlotte's Hospital.

HARDY, T. LIONEL, M.B. Cantab., M.R.C.P. Lond., Assistant Physician to the General Hospital, Birmingham.

HOOD, J. B., M.B., Ch.B. Edin., Honorary Surgeon to the Royal Cornwall Infirmary, Truro.

QUINE, A. E., M.B., Ch.B. Vict. Manch., F.R.C.S. Eng., joint Venereal Diseases Medical Officer for the Cumberland and Carlisle City County Councils.

Certifying Surgeons under the Factory and Workshop Acts: LAVIN, M. F. (Ballymore Eustace District), FERGUSON, J. (Manchester, South-East District), REES-THOMAS, W. H., M.R.C.S., L.R.C.P. Lond. (Basingstoke).

Vacancies.

For further information refer to the advertisement columns.

Adelaide University.—Prof. of Path. and Bact. £800.
Ashford, Kent, Grosvenor Sanatorium.—Sec. Asst. M.O. £250.
Barnsley, Beckett Hospital.—Res. H.S.
Bath City Council.—M.O.H. £700.
Battersea General Hospital, S.W.—Res. M.O. for Cancer Wing.
Birmingham Education Committee.—Asst. Sch. M.O. £300.
Bradford Royal Infirmary.—Res. Surg. O. £250.
Brighton Education Committee.—Sen. Sch. Doctor. £600.
Brighton and Hove Hospital for Women.—Hon. S.
Cairo, Egyptian Government School of Medicine.—Professors and Lecturers. £E.1000 and £E.600. Also Radiologist and Lect. in Radiology, £E.500, Anæsthetist and Lect. in Anæsthetics, £E.500, and Registrar and Tutor, £E.600.
Canterbury, Kent and Canterbury Hospital.—Jun. Res. M.O. £150.
Carlisle, Cumberland Infirmary.—Res. M.O. £200.
Chester County Asylum.—Locum Tenens. 7 gs. per week.
Chorley Education Committee.—Asst. Sch. M.O. £400.
Derby, County Borough Education Committee.—Asst. Sch. M.O. £500.
Derbyshire Royal Infirmary.—Oph. H.S. £200.
Devonport, Royal Albert Hospital.—Res. H.S. £200.
Dumfriesshire Education Authority.—Med. Asst. £350.
Durham County Council.—Asst. Welfare M.O. £500. Also District Tuberc. M.O.'s. £600.
East London Hospital for Children, Shadwell, E.—Cas. O. £120.
George Town Municipality, Penang, Straits Settlements.—Asst. M.O.H. $4200.
Glamorgan County Asylum, Bridgend.—Fourth Asst. M.O. £400.
Great Yarmouth Hospital.—H.S. £200.
Greenwich Metropolitan Borough.—M.O. for Maternity and Child Welfare Work. £540.
Guisborough Union.—M.O. £700.
Hong-Kong Government.—Bact. and Path. £600.
Hong-Kong University.—Lecturer in Biology. £400.
Huddersfield, Pontefract, and Wakefield, West Riding County Council.—Dist. Tuberc. O.'s £500.
Ilford Urban District Council.—M.O.H. and Female Asst. M.O.H. £650 and £400.
Kent County Mental Hospital.—Jun. Asst. M.O. £300.
Khartoum, Wellcome Tropical Research Laboratories.—Asst. Bacteriologist. £E.600.
King's Lynn, West Norfolk Hospital.—H.S. £150.
Leeds General Infirmary.—Ophth. and Aur. H.S. £50. Res. M.O. £60. Two H.S.'s and Two H.P.'s.
Leeds Public Dispensary, North-street.—Res. M.O. £200.
Leyton U.D.C. Education Committee.—Asst. M.O. £350.
Liverpool, David Lewis Northern Hospital.—Three S.'s and Two P.'s. £150.
Liverpool Hospital for Consumption, &c.—Vacancies on Hon. Med Staff.
Liverpool School of Tropical Medicine.—Tropical Research, Brazil. £300.
Manchester, Ancoats Hospital.—Res. S.O. £200.
Manchester, Baguley Sanatorium for Tuberculosis.—Three M.O.'s. £400, £350, and £300 respectively.
Manchester, Monsall Fever Hospital.—First Med. Asst. £350. Second Med. Asst. £300.
Manchester Royal Infirmary.—Med. and Surg. Registrars. £75. Surg. Tutor. £30. Also H.S.'s. £25.
Manchester, St. Mary's Hospitals for Women and Children.—Res. Obst. S. and Res. Surg. O. £250 each.
Melbourne University.—Lecturer in Pathology. £600.
National Hospital for Diseases of the Heart, Westmoreland-street, W.—Res. and Non-Res. M.O.'s. £100 and £50.
Nelson, Lancs.—M.O.H. and Sch. M.O. £700.
Newark Hospital and Dispensary.—Res. H.S.
Newcastle-upon-Tyne, Hospital for Sick Children.—Sen. Res. M.O. £200.
Newcastle-upon-Tyne Poor-law Infirmary.—Second Res. M.O. (Female). £250.
Newport Borough Asylum, Caerleon, Mon.—Asst. M.O. £300.

Northampton General Hospital.—Two H.S.'s. £200 each.
Northamptonshire C.C. Education Committee.—Sch. Dentist. £350.
Nottingham, Notts Education Committee.—Asst. School M.O. £425.
Prince of Wales's General Hospital, Tottenham.—Hon. Asst. P. and Hon. Asst. Ophth. S. Also Clin. Asst.'s.
Putney Hospital, S.W..—Res. M.O. £150.
Queen's Hospital for Children, Hackney road, Bethnal Green, E..—H.S. and Cas. H.S. £100 each.
Rochester, Kent, St. Bartholomew's Hospital.—Jun. Res. M.O. £150.
Rochdale Infirmary and Dispensary.—Sen. H.S. £200. Also Jun. H.S. £100.
Royal National Orthopædic Hospital, London, W..—Hon. P.
Royal Society, Burlington House, London.—Two Fullerton Studentships. £400 each.
St. George's Hospital, S.W..—Two Cas. Officers. £200.
St. Helens Education Committee.—Whole-time Dentist. £450.
St. Mary's Hospital Medical School, Paddington, W..—Lecturer on Chemistry. £300.
Sheffield Royal Infirmary.—H.S. £150.
Shetland—Tingwall Whiteness, and Weisdale.—M.O. and Pub. Vac. £45.
Southampton, Free Eye Hospital.—H.S. £150.
Swansea General and Eye Hospital.—Res. M.O. £200.
Taunton and Somerset Hospital.—Res. Asst. H.S. £80.

Notice is given of a vacancy for a Specialist Medical Referee for Cases of Industrial Disease, in County Court Circuits Nos. 24, 28, 30, 34, and 54. Applications should be addressed to the Private Secretary, Home Office, not later than Sept. 4th.

Notice is given of a vacancy for a Medical Referee under the Workmen's Compensation Act for the Sheriffdom of The Lothians and Peebles, and also for Circuit No. 11 (Bradford, Keighley, Otley, and Skipton County Courts). Applications should be addressed, respectively, to the Private Secretary, Scottish Office and Home Office, Whitehall, London, S.W.1, not later than Sept. 4th.

The post of Medical Adviser at Liverpool, under the Colonial Office, is vacant. Application for particulars should be made to the Colonial Office, London, S.W.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Abertillery, Bishop's Castle, Borrisoleigh, Darlington, Staveley, and Tallow.

Births, Marriages, and Deaths.

BIRTHS.

HILL.—On August 7th, at "Dalestead," Caterham Valley, Surrey, the wife of Fred. T. Hill, M.R.C.S., L.R.C.P., of a son (Anthony).

JEFFREYS.—On August 5th, at Brookvale-road, Southampton, the wife of Walter M. Jeffreys, M.B., of a daughter.

JOLY.—On August 10th, at Watford, the wife of James Moncrieff Joly, M.B., B.S. Lond., of Doom Dooma, Assam, of a son.

WHITNEY.—On August 7th, at High View, Maldon, Essex, the wife of C. Underwood Whitney, L.R.C.P., M.R.C.S. (late Captain, R.A.M.C.), of a son.

DEATHS.

KNIGHT.—On August 7th, at his residence, Swansea, Frederick Knight, M.D. Lond., M.R.C.S., aged 59.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. P. A. Agutter, Wellingborough; Mr. R. J. Albery, Lond.; Sir R. Armstrong-Jones, Carnarvon; Mr. J. E. Adams, Lond.; Mrs. V. B. Alvarez, New York.
B.—Lieut.-Col. Sir J. Barrett, Melbourne; Mr. J. B. Burke, Kingston Hill; British Dental Association, Lond., Sec. of; Dr. G. J. Branson, Birmingham; Mr. J. P. Buckley, Manchester; Mrs. C. Brereton, Lond.; Dr. W. A. Berry, Lond.; British Thomson-Houston Co., Lond.; Dr. E. A. Barton, Lond.; Surg.-Commdr. W. Bastian, R.N.
C.—Dr. J. B. Crozier, Lond.; Dr. J. B. Christopherson, Lond.; Dr. F. G. Crookshank, Lond.; Dr. J. C. Clayton, Lond.; Colonial Office, Lond., Asst. Private Sec.; Dr. C. R. Corfield, Manchester.
D.—Dr. L. S. Dudgeon, Lond.; Sir D. Duckworth, Bt., Lond.
E.—Evelina Hospital, Lond., Sec. of.
F.—Food Education Society, Lond.; Dr. A. R. Fraser, Aberdeen; Factories, Chief Inspector of, Lond.
G.—Major W. R. Galwey; Dr. A. L. Grant, Burghead; Prof. G. Galli, Rome; Dr. H. L. Gordon, Lond.; Dr. R. G. Gordon, Bath; Mr. W. E. Gurden, Lond.
H.—Fleet-Surg. W. E. Home, R.N.; Dr. J. B. Hood, Truro; Dr. H. Head, Château de la Mimerolle; Capt. H. A. Haig, R.A.M.C.
K.—Dr. H. C. Kidd, Bromsgrove; Dr. R. Knox, Lond.; Mrs. V. M. Kirkwood, Lond.
L.—Dr. C. E. Lakin, Lond.; Dr. W. J. Le Grand, Blackwell; Dr. G. C. Low, Lond.; Mr. E. M. Little, Lond.
M.—Manchester, School Medical Officer of; Dr. J. B. Mennell, Lond.; Mr. E. Miles, Lond.; Major P. Manson-Bahr, D.S.O., R.A.M.C.; Ministry of Health, Lond.
N.—National Association for the Prevention of Tuberculosis, Lond.; Dr. A. Napier, Glasgow.
P.—Mr. V. G. Parr, Lond., Mr. T. D. Pryce, Nottingham.
Q.—Queen Charlotte's Hospital, Lond., Sec. of.
S.—Dr. A. G. Shera, Eastbourne; Stoke Newington, Medical Officer of Health of; Dr. E. I. Spriggs, Banff; Mr. D. M. Shaw, Cheddar; Dr. E. B. Sherlock, Darenth; Student; Mr. S. Stephenson, Lond.
T.—Dr. A. H. Thompson, Lond.; Dr. J. Tatham, Oxted.
U.—University of Liverpool, Dean of Faculty of Medicine of.
W.—Dr. L. A. Weatherly, Bournemouth; Dr. F. J. Wethered, Falmouth; Mr. H. Wiltshire, Lond.
Y.—Mr. P. Yates, Manchester.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

Notes, Short Comments, and Answers to Correspondents.

AN EMERGENCY CASES HOSPITAL IN THE MEUSE.

BY J. A. CAIRNS FORSYTH, M.Sc., M.B., F.R.C.S.,
SURGEON TO THE FRENCH HOSPITAL.

(*Concluded from p. 272.*)

The Defence of Verdun.

ON Feb. 23rd, 1916, wounded began to arrive from Verdun. They were in a bad way, and very "jumpy," having suffered much during the terrible bombardment, which they described as something quite extraordinary in the way of shell fire. Certainly some of the shells which fell around Verdun were of uncommon size.

The first fortnight of that historic battle will always live in our memories. Work was at the highest pressure on account of the constant stream of wounded that flowed through Bar-le-Duc. How the staff of the Evacuating Hospital stood the strain I do not know, but they went about their work uncomplaining, their bodies limp with fatigue and their eyes heavy from want of sleep.

The battle was practically directed from Bar-le-Duc, which soon became a very busy place. You will all have read of the wonderful motor transport service that was so quickly organised to assist the railway transport, for the only railway to Verdun that was of any service was a narrow gauge line, and much time was lost in transferring material from broad gauge wagons to narrow gauge. 24,000 motor lorries made the tour to Verdun and back, each day and night. Bar-le-Duc was so policed that no civilian vehicles of any kind were allowed in, and even military vehicles had to enter by one way and leave by another. Stopping or turning in the main streets was prohibited. On the roads to Verdun traffic was as well managed, and each class of troop and transport had its different route, according to the speed of its travelling.

With the opening of the battle there hurried to the Verdun front numerous British ambulance sections belonging to the British Ambulance Committee, the British Red Cross, and the British Committee of the French Red Cross. All of them got arduous and dangerous work transporting wounded from the "postes de secours."

Shell Wounds and Gas Gangrene.

The wounds received around Verdun were in quite another class from those of the Argonne fighting in 1915. They were practically all shell wounds, horrible tearing smashes, and the proportion of fractures was very high. Of the 3000 wounded that came to us in 1916 over 1000 had compound fractures, many of them multiple. Gas gangrene was also very rife, and we had 266 cases of gross gas infection, gas that could be detected by the senses. Of these 266 cases 179 were of the local type, and the majority remained so. Only eight of these patients died. The remaining 87 were cases of the fulminating type, where a whole limb or a large area such as the shoulder, back, or buttock was involved. 59 of the 87 died. Included in this series are eight cases of that curious condition, "white gangrene" of the lower limb. The limb then had the appearance of a gigantic phlegmasia alba dolens, and the toxæmia was especially profound. In seven of the eight cases the whole limb was affected and all died. The remaining case was atypical, for the condition extended up only to the knee. That case got well.

French Colonials.

As the battle continued we were brought more and more into touch with the Colonial troops of France—Arabs from North Africa, blacks from Senegal, Somaliland, and the French Soudan, Annamites from French Indo-China. In the French hospitals there was no separation of the coloured men from the white—they were treated just like the others, except that in the case of the Arabs and certain blacks their food had to be in accordance with their religious laws. Many of the blacks partook of anything that was going, but the Arabs were most particular in their diet.

Of all these men of colour we were specially attached to the primitive black. They were a most well-behaved, polite lot of men, who showed an almost dog-like devotion to those who ministered to their wants. Some of them were men of huge stature, yet they were among the gentlest patients that ever entered the hospital. One gathered from their officers that they were terrible fellows in the fight, giving no quarter and asking for none. At times they were difficult to hold, especially under heavy shell fire, but once launched at the attack they proved their mettle. Then they were prone to

throw away their rifles, and they entered battle armed only with this fearsome knife, "coup coup" as they called it, that deals a blow akin to that of the Gurkha kukri. One can imagine the effect on the Bosche when he saw a regiment of these ebony giants coming on, brandishing such weapons.

The Nightly Alerte.

In the autumn of 1917 there commenced a long period of bombing of the Meuse district, no doubt in response to the bombing of German territory by the British Independent Air Force. It was an anxious time, especially during the month of September, when we got the "alerte" every night. Bar-le-Duc suffered badly, one corner of it being blown away. The Credit Lyonnais was burned to the ground, and the civil hospital had to be evacuated. Revigny suffered in like manner, especially round the railway station and the artillery park. We soon realised, however, after the first few nights that the Bosche did not intend to harm our hospital. When they had finished bombing Revigny they crossed the ridge and made for our lake as a rallying point. Keeping well down so as to be safe from the guns, which could not fire low on account of the ridge, they passed over us at a height of about 100 yards. With our wards plainly visible in the moonlight, our unit must have been an excellent target, but they left us alone.

British Wounded from Champagne.

In the spring of 1918 the great German offensive commenced, and among the wounded who came to us from the Champagne were many British. They had been badly knocked about, and we were glad to see them. A few weeks later and the wounded Highlanders of the 51st Division arrived, but now things had got the turn and the Bosche was being pushed back. These were the days of open warfare and bullet wounds, and it was quite a pleasure to treat bullet wounds after the shell wounds of Verdun, for few of them suppurated.

Summer saw the advent of the American Army to Verdun and the Argonne, and the gradual replacement of the French by their troops. We now had to rely entirely on the army of the Champagne for patients, and many came to us from that army of Colonial regiments. Our hospital had quite a "café au lait" appearance, and our only regret was that we did not speak Arabic.

A Long Farewell.

With the signing of the Armistice, we got leave to return to England, so we packed up our tents and stole away. Our last patients went into the interior or "en permission," vowing undying friendship, and the hospital was then rapidly dismantled. The bulk of our equipment was sent to a château near Paris, recently purchased by the British Committee of the Croix Rouge, and presented to the French as a sanatorium for consumptives.

We said good-bye to our many friends in the district, and took a sad and long farewell of Faux Miroir. It had been our home for over three years and we were loth to leave it, but we came away with the pardonable feeling that we had been of some assistance to a nation in the hour of her sorest need. Verdun now is but "a tale that is told" in comparison with the more recent glories of the Western front, but to us there will ever remain the memory of that great defence and the sacrifice it entailed. The part that our unit played may have been small and unimportant, but perhaps it may be that the equal treatment of all the specimens of humanity of the French world, the fair division of kindly gifts and comforts from home, the little sprees and sing-songs, have done something towards that real kinship of nations—kinship in human suffering.

THE ILL-EFFECTS OF THE AMOURS OF OLD MEN.

AT a recent meeting of the Académie de Médecine of Paris M. Armaingaud, the author of a remarkable book entitled "L'Homme vers la Fin de sa Vie," discussed an important subject which seems to have escaped systematic treatment—the ill-effects of the amours of old men. Individual observations on the point must have been made from time to time in general practice, but their interpretation, being doubtful, they have not been thought worth recording, though they have given rise to a general impression. Having practised for 35 years in a very large French town and enjoyed both the confidence and the friendship of an important clientèle, M. Armaingaud has had special opportunities for investigating the subject. In many families the old men preserved all their faculties and remained vigorous until an advanced age. But there were others who fell into idleness and suffered from ennui. They were rich business men aged 60 to 65 years or more, who had retired after making their fortunes. Though in good health and intelligent, their moral and their physical strength declined sensibly in one or two years and their characters changed. Their wives often took M. Armaingaud into their confidence, and said that the old man, formerly charming and benevolent, loving his grandchildren much and taking them on his knee, became indifferent. He often became depressed, bad-tempered, and exacting. If not told it, M. Armaingaud quickly divined that he had a mistress of 20 to 35 years. From the earliest period of his career his observations tended to convince him that genital excesses were often the cause of apoplexy, cerebral congestion and softening, heart affections, and rapid decline of intelligence and power in men of 60 to 70 years. He resolved to study the question as soon as he had the cases which would enable him to do so. When such a case arrived his view was confirmed. He told the anxious wife to send her husband to him as soon as he complained of the slightest malaise. Questioning led the patient to admit that he had a mistress, generally young. M. Armaingaud pointed out the ill-results, reminding him of the death of a contemporary, which was due not to age but to excess, absolute or relative, and after 60 or 65 years very little indulgence might constitute excess. He added that it was to old men especially that the saying applied, "*Post coitum omne animal triste.*" In 38 cases 12 patients would not give up the mistress, 7 did so for a few years and then relapsed, 19 did so permanently. The 12 who did not were from 62 to 66 years of age (average 63). They died at an average age of 73 years. They lost on the average four years of life, for the expectancy of life, according to the tables of French insurance companies, for 63 years is 14 years. The 7 who partially followed the advice were aged 60 to 69 years (average 65). According to the tables, their average expectancy was 13 years, bringing the average age at death to 78. But 6 died at an average age of 75; 1 was an exception and lived till 80. The 19 who did take the advice were aged from 63 to 69 years (average 66). Three, who were exceptions, lived until 68, 70, and 72 years; but the 16 others, who had an average expectancy of life of 12 years—that is, to 78 years—lived until an average age of 86 years, 13 years more than the first class and 11 than the second. The Arab proverb quoted by Professor Lacassagne in his book, "The worst things for an old man are a good cook and young woman," expresses a great truth.

"DIADEM" TALCUM POWDER.

IT is well known that talc provides an excellent dry lubricant for toilet purposes. Its curious greasy or soapy feel is a remarkable characteristic. In "Diadem" powder a particularly fine impalpable talc is selected as a basis, agreeably perfumed with unirritating agents. In addition there is present a well-known antiseptic powder also in a finely divided state. Altogether this toilet powder reaches a very good standard, having regard to the purposes for which such preparations are employed. The specimen was submitted by Messrs. Robartes, Ltd., Dyer's Buildings, Holborn Bars, London, E.C.

MOTHERCRAFT.[1]

THIS useful little text-book is somewhat incorrectly described as a "new edition," for, apart from the many new chapters, some of those under the old titles are by new authors, and many of the original chapters are omitted. Among the most useful of the new chapters is one by Dr. J. S. Fairbairn on "Pregnancy as Affected by Maternal Disease," in which he describes and discusses the common diseases which are associated with pregnancy, and those caused by the pregnancy itself—chiefly the toxæmias of pregnancy.

Dr. Eardley Holland contributes a particularly useful chapter on "Venereal Disease in Relation to Dead Birth and Infant Mortality." An account is given of the nature and course of syphilis, its effect on the fœtus, its mode of transmission, and the methods of treatment. He points out the importance of syphilis as a cause of antenatal mortality, and urges the necessity for the examination of every macerated fœtus by an expert for evidence of this disease.

One of the most important and useful additions is the chapter by Dr. Henry Kenwood on "Child Welfare and Cow's Milk: Our Duty." So far the public demand for clean milk has met with little or no response, but we can only hope with Dr. Kenwood that this will not always be so. He condemns in no uncertain language the milk which is at present sold, and which is so frequently used as a food for infants. He says that "much of the milk which is sold is dangerously dirty, and this dirt in milk is responsible for much infant sickness and mortality, especially in the summer months. From 5 to 10 per cent. of all the samples of cow's milk examined have contained the cow germ of consumption, and in young children nearly half the fatal cases of abdominal tuberculosis are due to this germ. Occasionally milk infected

[1] Mothercraft. A Selection from Courses of Lectures on Infant Care delivered under the auspices of the National Association for the Prevention of Infant Mortality. Third edition, revised and enlarged. London: John Bale, Sons, and Danielsson, Ltd. 1919. Pp. 320. 5s. net.

by human agencies causes epidemics of diphtheria, enteric fever, scarlet fever, &c.; 10 per cent. of all the samples of milk taken under the Sale of Food and Drugs Acts in England and Wales and submitted to the public analyst are found to be adulterated." Simple tests which can be applied by any intelligent person are given for the content of cream, and the presence of dirt or sourness. It is impossible to mention in detail the subjects which are dealt with so helpfully, but those which will be found of great use include Causes, Recognition and Prevention of Dental Defects, by Mr. C. Peyton Baly; Diseases of the Skin in Infancy, by Dr. H. G. Adamson; and the Law Relating to Maternity and Child Welfare, by Dr. T. Shadick Higgins. In the appendix is given a selection of the best answers to questions on infant care which have been set by the National Association for the Prevention of Infant Mortality at the examination held at the conclusion of each course of lectures. The answers are reproduced as a guide to other students, and will, with the examiner's note, be of great assistance to health visitors and others who intend to present themselves as candidates at future examinations.

A MEDICAL REFORMER.

IN its "News, Notes, and Queries," the *Liverpool Post* appositely remarks that Parliament would be much the better these days if it could boast a Joseph Hume, who set himself to check Ministerial extravagance and abuses wherever he could detect them, and maintained a small staff, at his own expense, for ferreting out and exposing everything prejudicial to the public purse. So formidable did he prove that Ministers framed their estimates in fear of him. Joseph Hume was born on Jan. 22nd, 1777, and was the son of a Montrose shipmaster. On the death of his father, his mother was forced to sell crockery in the market-place, but managed to send her son to school, and in 1790 he was apprenticed to a local surgeon. Subsequently, he studied medicine at Aberdeen, Edinburgh, and London, and entered as a surgeon in the sea service of the East India Company. He was afterwards transferred to the land service of the Company, and having mastered Hindustani and Persian was employed in political duties. In 1801 he joined the army at Bundelcund as a surgeon, and during the Mahratta war rendered the Government important services, including a means of drying the stock gunpowder which had become wet. Leaving the army, having somehow amassed £40,000, he spent some time in travel and study, publishing in 1812 a translation in blank verse of the *Inferno* of Dante. His political career at home began in the same year, and he represented at different times Weymouth, the Border burghs, Aberdeen, Middlesex, Kilkenny, and Montrose. Like his personal and political friend, the Founder of THE LANCET, the late Thomas Wakley, he urged the abolition of flogging in the army. He was a Privy Councillor, a Fellow of the Royal Society, and twice Lord Rector of Aberdeen University. He died in 1855.

PREGNANCY AND CHILD BIRTH AMONG SIBERIAN ABORIGINES.

Miss M. A. Czaplicka, a Russian lady who lived for some years in Siberia among the primitive people, has shed a good deal of light on the mode of life, habits, customs, and superstitious practices in a book entitled "Aboriginal Siberia, a Study in Social Anthropology" (Clarendon Press. 14*s*. net). Among other things she has collected data relating to pregnancy and childbirth, some of the more interesting of which are here given with the names of the tribes concerned:—

The Kamchadal.—According to Krasheninnikoff, an eighteenth-century traveller, a woman gave birth to a child kneeling and in the presence of all the villagers without regard to sex or age. The newly born child was wiped with and wrapped in a species of grass called *touchitch*; a stone knife was used to cut the umbilical cord, and the placenta was thrown to the dogs. A woman who wished to become pregnant had to eat spiders; some women for this purpose would eat the umbilical cord together with a grass called *kiperi*. On the other hand, if a child was not desired there was a widespread custom of causing abortion by shock, or by killing *in utero*. The old women "specialists" who carried out the operation frequently caused the death of the mother. In order to induce sterility concoctions made from certain grasses were taken.

The Yukaghir.—All cases of childbirth among the Yukaghir were very difficult, and the barbarous practices attendant on them produced nervous diseases and premature age in the mothers. The foundation of these practices is the belief that difficult labour and unfortunate birth are caused by the entry of an evil spirit into the woman. Difficult labour is also attributed either to the failure of the mother to observe certain taboos or to the ill-will of the child itself. Therefore two pregnant women are not allowed to live in the same house in case the two unborn children should communicate and decide which mother should die. Sometimes the husband helps his wife who is in difficult labour by placing his arm around her abdomen. The taboos connected with childbirth affect not only the mother, but also the rest of the household. Some of these taboos are: the pregnant woman must not eat the fat of the cow or reindeer, or larch-gum, as these things are believed to "freeze" or thicken in the stomach and to fasten the child to the inside of the uterus; but butter of the cow or horse's fat may be eaten. She ought not only to be active and energetic during the puerperium, but ought, in walking, to raise her feet high and also to kick away stones or lumps of earth in her path, thus symbolising the removal of obstructions at childbirth. At the first attack of labour-pains not only the wife, but the husband and midwife, must loosen all their garments, so that the child may not be hampered in any way.

The Chukhee.—This tribe is one of the most prolific in North-East Asia, and the women are delivered with little trouble. Custom forbids the mother receiving any help at childbirth—help may only be given in cases of absolute necessity. She must not groan, and has to attend to her own needs as well as to those of the new-born infant. She cuts the cord (with a stone skin-scraper) and pulls away the placenta. Accordingly, a large pelvis—because it eases delivery—is considered one of the chief features of womanly beauty.

The Gilyak.—The Gilyak woman never dares to give birth to a child at home; she must, in spite of the severity of the weather, go out of the hut for this purpose. In late fall or winter a special hut is built for the woman, but it is a very uncomfortable affair, so that mother and child suffer from exposure to cold and wind. To help the woman in labour a wooden figure is carved, representing a woman in the act of delivery, and to it are sacrificed different kinds of foods, with a view to placate the evil influences which are at work. Special knives are used to cut the cord. The woman returns home on the eighth or ninth day. A woman who wishes to have a child wears various amulets, such as a dog's tooth, &c.

The Buryat.—Among the Buryat of Alarsk during delivery the women of the family are gathered near the mother and take the child and drop it in a horizontal position on the floor, which has been made soft for the purpose, after which it is washed and wrapped up. Two or three days later a feast is held at which the ceremony of wrapping up the child begins. A boy or girl present is chosen to reply to questions put by a temporary "mother," who holds in her hands an arrow and a right haunch of bone of an animal. After the questions have been asked and answered three times a name is given to the child. The feast ends with the making of a fire in the place where the birth occurred; the guests, including the father, surround the fire and squirt into it from their mouths a mixture made from meal and oil, all in one voice exclaiming "Give more happiness! Give a son!"—repeated three times. General excitement prevails and they vie with each other in smearing their friends' faces and clothes with oil, ashes, and fresh animal excrement.

The Yakut.—Yakut marriages are generally fruitful, averaging ten children to one woman, but becoming less so towards the northern districts, although the Yakut are everywhere more prolific than the Tungus. The lack of children is ascribed solely to the woman. According to the explorer Jochelson, women from the north have very difficult delivery. The Yakut regard the pangs of childbirth as sickness caused by evil spirits, and therefore if the assistance of a midwife or the goddess of fertility, Aylsit, is of no avail, a shaman is called in to fight the spirit. A Yakut woman is always delivered on the bare earth, for the Yakut believe that the "earth-soul" is communicated to the infant from the earth at the moment of birth. No consideration is shown to mother or child, for women possessed of evil spirits are regarded as no less perilous to society than those infected with epidemic disease. This accounts for the cruelty manifested by the Yakut towards women suffering the pains of labour. Cases have been known where the woman has died as a result of such cruelty. To hasten delivery two posts are driven into the ground and a third one is fastened across the top of them. The woman kneels and places her arms over the cross-piece far enough to bring the latter under the arm-pits. One man from behind holds her shoulders and another in front holds her hands to prevent any possibility of her resisting the operations of the midwife. The latter kneels in front of the patient and presses upon her abdomen, at the same time imploring the aid of the benevolent goddess, Aylsit, who is believed to be present at childbirth and to assist the patient. Certain food taboos are observed before childbirth: the expectant mother must eat neither swan's flesh nor wild birds' eggs, because the child might otherwise be deaf and imbecile.

The customs collected by Miss Czaplicka are found among aborigines more or less all over the world. The custom mentioned as existing among the Yukaghir of the spectators loosening their garments is in one form or other very old. It was a belief of ancient Roman and Greek folk-lore that the goddess of delivery, Lucina or Ilithyia, could hinder delivery according to the attitude which she took up, a belief referred to by Herrick, who says, "At thy birth Lucina cross-legged sat."

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